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ABSTRACT

This document is a collection of informative pamphlets, articles, and resource materials to be used in the development of classroom career education programs. Among the inclusions are: a four-page model of a career education program from kindergarten to post high school, a one-page article about career development, a one-page diagram of the major elements of career education, brief outlines of jobs associated with the 15 occupational clusters, and diagrams showing occupations related to interest and ability in 14 curriculum areas. (JC)

CAREER EDUCATION *Success-Concept*

Life of SUCCESS of Life

ED 094170

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Time–Personnel–Facilities–Finance

Community — State—National — Support

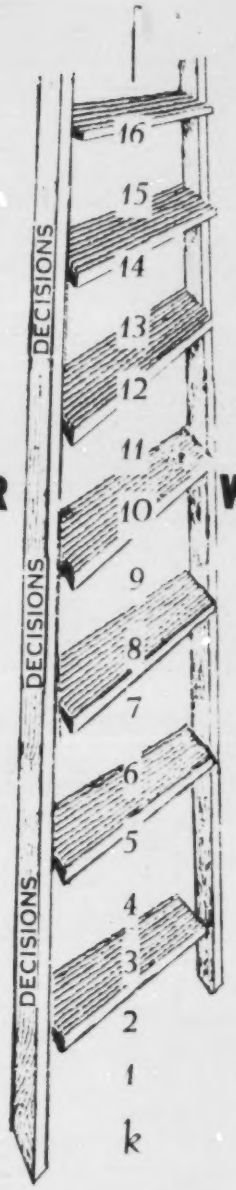
INDIVIDUAL NEEDS — CHALLENGE AND INNOVATION

ATTITUDE ↔ INTEREST ↔ ABILITY ↔ ACHIEVEMENT ↔ SATISFACTION

AWARENESS ↔ EXPLORATION ↔ PREPARATION ↔ SPECIALIZATION

CAREER WORLD

FORMAL EDUCATION



INFORMAL EDUCATION

INDIVIDUAL NEEDS — INNOVATION AND CHALLENGE

SELF - CONCEPT ↔ CONFIDENCE ↔ INSIGHT ↔ CREATIVE PRODUCTION

Community Involvement

Creativity

↑

Special–ization

↑

Entry Jobs

↑

Visitation

Fantasy Selections

Home And Community Background

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CAREER EDUCATION

and

CAREER DEVELOPMENT

Career Education is a new emphasis, in all areas, at all levels, for realistic pursuits and placement in occupational and professional fields of endeavor.

Career Development is emphasizing an individual's personal growth and development throughout the various stages of growing and making decisions in his lifetime. Career Education refers to the broad program. Career development is the individual's development within the program, and his personal process of making decisions, and developing. It is his adjusting to the changes in his life style.

Career Education Concept is a concept with broad and long range goals. It combines the academic with the world of work. We want to teach individuals to learn to live, to learn to make a living, and to learn to learn. We need to help individuals accept change and to be of service in facilitating change that is inevitable in their lives. Let us think of the broader approach and use the term career dynamics as it applies to the lifetime of an individual with a changing career pattern.

Career Education is not:

1. Another name for Vocational Education
2. Anti-college or pro-trade skills
3. Another course to be added to the curriculum
4. Another way of locking an individual into particular career or occupational groups.

Career Education calls for basic Educational subjects to incorporate career development activities throughout the curriculum.

Career Education bridges the gap between:

1. School and work
2. Education and employment
3. Child and adult

Career Education begins in the minds of the local educators in the local school setting, not in the State Department ot Education, nor with the Director of Career Education, nor in a U.S. government office in Washington. Career Education is a feeling for an individual student and his needs as a future productive and happy contributive citizen in our society.

No longer do we teach math for the sake of math, as some of us did, but we help the student to learn to be a productive citizen by the use of mathematics. To paraphrase a former famous quote "Ask not what the student can do for me, but what can I do for the student," in his math class, and, surprisingly enough, it may be far removed from mathematics.

Career Development begins at home, is expanded at school, and refined with experience in the career world. Let us all work together to help individuals to be happy, productive citizens in our society with a realistic approach to making a life as well as making a living.

Career Education is a community responsibility. Each year a new crop of our most valuable product is placed on the market of human enterprise. We use them effectively or we lose them eventually, and far too many have to be protected from themselves or from other members of our society. We have a choice; one is constructive, and the other is tremendously costly.

Career Counseling is a part of the answer whether it is done by parents, teachers, counselors, community leaders, or other unspecified concerned citizens. Let us help each developing individual answer these questions for himself:

1. What is important to me?
2. What is possible for me?
3. What is probable for me?

Career Education is broader than but includes:

1. Vocational Education
2. College Preparatory
3. Guidance and Counseling
4. Basic Skills
5. Morals and Values

The Director of Career Education of the Missouri State Department of Education does not have a Career Education "model" as such, rather, a concept built and focused upon the individual in his various stages of growth and development throughout his life span of decision making. This concept allows and encourages interchange between the formal and the informal education, and takes advantage of community resources. It tends to focus on entry jobs and immediately employable individuals when they leave their formal educational program. This approach has been symbolized by a ladder and the concept of success. It does not emphasize any commonly used words such as vocation, professions, trades, school, or curriculum. The primary message is to build on the individual's growth and his success at the various stages of his development. This idea is completely surrounded by worker satisfaction and the realities of living a life.

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ED 094170

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PERSPECTIVES AND PRECEPTS OF CAREER EDUCATION

Richard B. Mease
Director, Career Education
State Department of Education
Jefferson City, Missouri 65101

1. Career Education connotes a broad life career approach, such as, "The career conscious individual, in various settings, roles, and events throughout a lifetime," - Gysbers and Moore, University of Missouri, Columbia.
2. Career Education suggests the process of change and development with adjustments and maturity taking place in an individual's life.
3. Career Education is basic to all subject-matter areas, i.e., all subject-matter areas have career education implication.
4. Career Education, it seems, must first meet economic needs but these are not to be overdone or overrated. "Man does not live by 'work' (bread) alone."
5. Career Education is individualized education with a purpose.
6. Career Education is a means by which more effective education can take place. The concept of a life career also makes it the end of our endeavors. Therefore, career education is both the means and the end.
7. Career Education begins in the home, is expanded in school and refined in the world of work and the world of leisure.
8. Career Education is best accomplished by local community initiative and effort.

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CAREER OF LIFE

Career development begins at home, is expanded in schools, and refined in the world of work and the world of leisure.

by Richard B. Mease, Director
Career Education
State Department of Education
Jefferson City

THE EDUCATION profession has reached a new level of idealism and workmanship.

Previously, we had as an educational ideal the education of all of the children to their optimum. Now we have accepted the challenge of educating all of the children to their optimum in a career for life. Perhaps it is more appropriate to say preparing them for a career *of* life.

In attacking this problem, many educators have emphasized components of the problem. These components might be listed as: relevance, 100 percent placement, saleable skills for all, basic curriculum, dignity of honest labor, or others that sophisticated professionals in and out of education could add.

One approach would be to emphasize the totality of making a career of life, beginning at birth and continuing through retirement, and accepting death.

Career education has been defined as a concept more often than as a program. Career development has also been defined as the development of a person from very early youth through life stages of challenges, decision making and fulfillment of potential as a child of God.

Hence, the often used term life career development was initiated by Gysbers and Moore of the University of Missouri, Columbia. Theirs is the idealistic concept of preparing youth for making a career of life, helping them to learn to live, to learn to make a living and to learn to learn.

Just as many people have learned in spite of us, all are now expected to learn to make a career of life because of us.

We have always been career educators but the task now assumes more significance, responsibility and a purpose. We now have a renewed challenge both for the learner and the teacher.

All of us have wanted to cooperate in our mutual task of education and preparing our youth for life. Career education is a new term or a new handle we can accept, particularly if we assume a broad approach instead of a narrow approach to vocational education or college preparatory programs.

The problem is to secure cooperation of individuals and have them forget the rather narrow individual biases that have developed over the years of their lives. These biases seem to center around (1) work for the sake of work, (2) vocational education to make a living, (3) college preparatory for the good life, (4) aesthetic for the sake of beauty or (5) learning for the virtues of subject matter acquisition.

It is possible to support each of these ideas to a degree, but to hold to any one of them exclusively is as bad as no goal at all. Our society has experienced all of these as motivations as well as no motivation at all.

Life is not without purpose. Each of us has goals and motivations. The belief that the concept of life career development is universal in its approach and deep enough in its challenge will attract all motivations and secure the cooperation of persons of all ages.

Career development begins at home, is expanded in school, and refined in the world of work and the world of leisure.

Career education is a community responsibility. Each year a new crop of our most valuable product is placed on the market of human enterprise. We are able to place them effectively in society or we lose them eventually. Far too many have to be protected from themselves or from other members of our society.

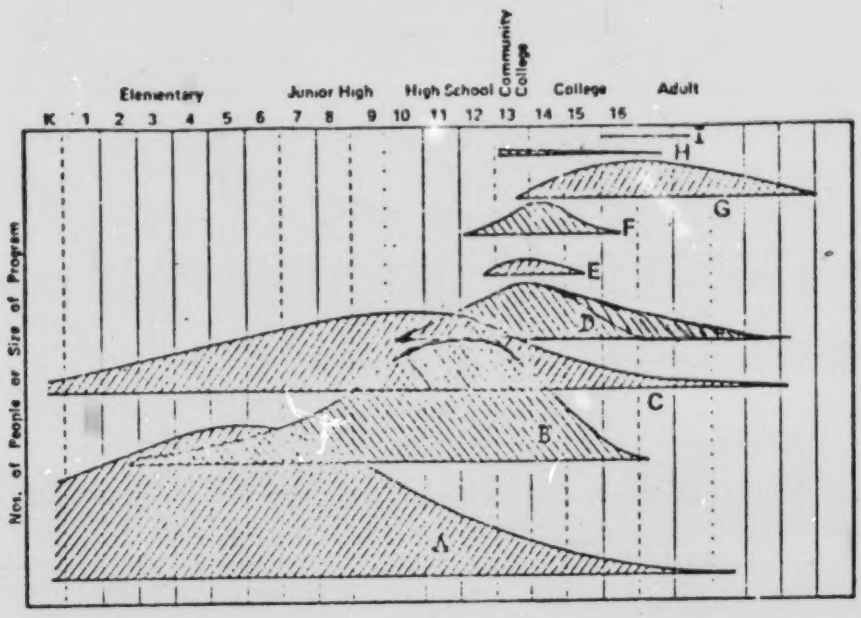
We have a choice. One is constructive—a positive, purposeful program of career education. The other is tremendously costly—that of deterrent, correction, isolation and loss of potential.

Now the school can actually be a part of the youth's career. The subjects in school can support and extend his objectives in life. The student can learn for life and for his career. He learns for reasons of his own.

Career education now becomes the techniques of teaching and the goal of learning. It is both the means and the end. The teacher is the coordinator, facilitator and the catalyst. The teacher is frequently the instigator and always the supporter of a developing life style of happy productive citizens in our society.

The challenge in education then becomes making career education both the means and the end.

CAREER EDUCATION--
ITS MAJOR ELEMENTS



A	K-6	Basic Education
B	7-12	Practical Arts Education
C	K-A	Guidance, Counseling, Avocations & Values
D	10-A	Vocational-Academic Education
E	A	Apprenticeship Education
F	12-A	Technical Education
G	A	Manpower Training, Re-Training
H	13-17	Teacher Preparation
I	15-17	Research & Development

Our priorities of educational programs have not followed changing philosophies concerning relevance and career development. The human and physical resources are accessible to make the needed changes. Likewise, the ideas, things and people are available to cause the required redirection. The barrier is our inability to fully implement the best of what we now have.

No two snowflakes are alike. The same with students: beautiful, but each is different. Individual differences demand individualized options connoting differentiation, pacing, prescription, change. Yet we continue to promote the lockstep mode of teaching/learning.

The educator's taxonomy of the world of careers and its subdivisions - families or clusters of careers and their curricular implications - continues to be a grey area of communication.

The three domains of learning (cognitive, affective and psychomotor) remind us of the ever-present tendency to separate and focus on each in isolation. The proper balance given to the three domains remains a challenge for Career Education.

There is an exciting partnership of cooperative efforts emerging with education and business/industry. However, many of our peers reject and oppose this opportunity to expand career options for all youth.

Educators should serve as a catalyst in the career education movement, lending his energies and efforts to the cause, using his programs for the innovative-creative-leadership platforms.

It is obvious that the challenges and the barriers are there, and also the leadership is present. Now is the time for everyone to meet the challenges in working toward a united front of Career Education.

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HUMBLING CASES FOR CAREER COUNSELORS

Milton E. Larson
Fort Collins, Colo.

Phi Delta Kappan - February 1973

Creative and imaginative people are often not recognized by their contemporaries. In fact often they are not recognized in school by their teachers either. History is full of illustrations to give guidance counselors pause. Consider some of these:

Einstein was four years old before he could speak and seven before he could read. Isaac Newton did poorly in grade school, and Beethoven's music teacher once said of him, "As a composer he is hopeless." When Thomas Edison was a boy, his teachers told him he was too stupid to learn anything. F. W. Woolworth got a job in a dry goods store when he was 21, but his employers would not let him wait on a customer because he "didn't have enough sense." A newspaper editor fired Walt Disney because he had "no good ideas." Caruso's music teacher told him, "You can't sing. You have no voice at all." The director of the Imperial Opera in Vienna told Madam Schumann-Heink that she would never be a singer and advised her to buy a sewing machine. Leo Tolstoy flunked out of college; Wernher Von Braun flunked ninth-grade algebra. Admiral Richard E. Byrd had been retired from the Navy as "unfit for service" until he flew over both Poles. Louis Pasteur was rated as "mediocre" in chemistry when he attended the Royal College. Abraham Lincoln entered the Black Hawk War as a captain and came out as a private. Louisa May Alcott was told by an editor that she could never write anything that had popular appeal. Fred Waring was once rejected for high school chorus. Winston Churchill failed the sixth form (grade) in school.

Probably these people were identified as low achievers in school or as misfits on their job because of problems of relevance.

furnished by
Richard B. Mease
Director, Career Education
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Jefferson City, Missouri

ELEMENTS OF THE CAREER EDUCATION PROGRAM

I. The United States Office of Education (see attached sheet)

A. Career Awareness, in the early years of the individual's life

B. Career Exploration, later in the individual's life

C. Career Preparation, still later in the individual's life

D. Career Specialization for Placement, and further development & study

II. The College Entrance Examination Board *

A. Educational Awareness

Local, State, National

B. Career Awareness

Local, State, National

C. Self Awareness - Self Concept

Attitudes, Interests, Abilities, Achievements

III. The U. S. Office of Education Occupational Clusters Listed Alphabetically:

A. Agri-Business and Natural Resources

B. Business and Office

C. Communication and Media

D. Construction

E. Consumer and Homemaking Education

F. Environment

G. Fine Arts and Humanities

H. Health

I. Hospitality and Recreation

* Willingham, Warren W. and others, Career Guidance in Secondary Education, College Entrance Examination Board, 1972, Box 592, Princeton, N. J. 08540, $2.00.

J. Manufacturing

K. Marine Science

L. Marketing and Distribution

M. Personal Services

N. Public Service

O. Transportation

IV. Basic School Subjects -

Bismarck, North Dakota, Occupational Clusters -

Dictionary of Occupational Titles (see attached sheets)

V. Basic Levels in Schools

K - 1 - 2 - 3 etc. - Unlimited in a life time

VI. Basic Occupational Approaches

Unlimited in a life time

VII. Basic Educational Approaches

Unlimited in a life time

VIII. Basic Potential of the Classroom Teachers

Talent Unlimited

IX. Basic Potential of the Individual - Young and Old

Resources Unlimited

X. Basic Possibilities of Our Schools

Opportunities Unlimited

XI. Basic Possibilities of our Communities

Opportunities Unlimited

"Career Education" is based upon a model which provides for comprehensive program development at the elementary, mid-school, secondary and post-high school levels. The articulated, continuous curriculum design is based upon a strong emphasis on guidance and counseling at every level, and can be represented as:

POST-HIGH SCHOOL and ADULT

CAREER SPECIALIZATION

Includes Programs in:
- Community Colleges
- Junior Colleges
- Apprenticeship
- Vocational-Technical Colleges
- Private Vo-Tech Schools
- 4 Year Colleges & Universities

where students will:

- be involved in developing specific occupational knowledge and preparation in a specialized job area
- have opportunity to form meaningful employer-employee type relationships
- be provided necessary re-training or up-grading skills

GRADES 11-12

CAREER PREPARATION

Centers on Career Cluster programs at 11-12 grades where students will:

- acquire occupational skills and knowledge for entry level employment and/or advanced occupational training
- tie a majority of high school experiences into generalized career goals
- develop acceptable job attitudes
- be involved in cooperative work experience and have opportunity to be a member of a vocational youth organization

GRADES 7-10

CAREER EXPLORATION

Programs in the mid-school years, usually grades 6-7 through 10, where students will:

- explore key occupational areas and assess own interests and abilities
- become familiar with occupational classifications and clusters
- develop awareness of relevant factors to be considered in decision making
- gain experience in meaningful decision making
- develop tentative occupational plans and arrive at a tentative career choice

GRADES K-6

CAREER AWARENESS

Includes programs in the elementary grades, where students will:

- develop awareness of the many occupational careers available
- develop awareness of self in relation to occupation in their potential careers
- develop foundations for wholesome attitudes toward work and society
- develop attitudes of respect and appreciation towards workers in all fields
- make tentative choices of career cluster to explore in greater depth during mid-school years

USOE

CAREER EDUCATION STRATEGY COMPONENTS (worksheet*)

PHILOSOPHY ----------TOTAL AND COMPLETE EDUCATION FOR ALL

CURRICULUM	METHODS & PROCEDURE	ADMINISTRATION
World of Opportunity	Visitations	Individual Approaches
Entry Possibilities	Investigation Teams	Group Approaches
Successive Steps	World of Opportunity	Subject Matter Areas
	"buzz sessions"	
	"idea barrage"	Occupational Clusters
Basic Skills - Fundamentals	Career Clubs	Interest Areas
Basic Requirements,	Hands on Experience	Classroom Activities
Career Fields		
Future Possibilities	Team Teaching Approaches	Out of School Activities
Termination and/or Adjustment Possibilities	Hobbies & Avocational Possibilities	Para-professional Helpers
New Developments - Local,		Community Helpers
National & Worldwide Emphases		

* This is not intended to be complete nor a unified whole, nor is it expected that there would be agreement on the classifications, rather it is a means to a new approach in bringing career development concepts into the activities of the school and the community.

Career Education Focal Points and/or Points of Departure

1 Careers + living in Rural, Urban, Suburban, and Underdeveloped Areas
2 Careers in Space and its Possibilities - on the Ground + Under the Surface - In Water and the Mysteries of the Undiscovered World.
3 Careers Primarily Climatic + Weather - Frigid, Temperate - Arid Zones and Seasons of the Year
4 Careers in the Environment
5 Careers Primarily Related to Times - Daytime - Night-time, Noontime, Afternoon, Evening - The Past, Present, Future
6 Careers Related to Human Needs - Food, Clothing, Rest, Recreation, Health, etc -
7 Careers Related to Societal Needs - Government - Sanitation - Education - Services, etc
8 Careers Related to Holidays - In the U.S. + Holidays of other Lands
9 Careers Related to Cultures - Local - within our Nation - other Lands -
10 Careers Related to Activity Sites - Home, School, Office, Farm, Factory, Tent, Field, Lake, Mountain, Mine, Resort Area - Villages, City, Shop, Plants - etc
11 Careers Primarily Individual Activities - Working alone - working with one person at a time (Clinical remedial, etc) (CPA, Research)
12 Careers Primarily in Group Activities - Families, Schools, Agencies, Social, Fraternal + Professional Organizations, etc.
13(a) Careers of Women of Interest to Men
(b) Careers of Men of Interest to Women
14 Careers Related to Youth
15 Careers Related to Older Citizens
16

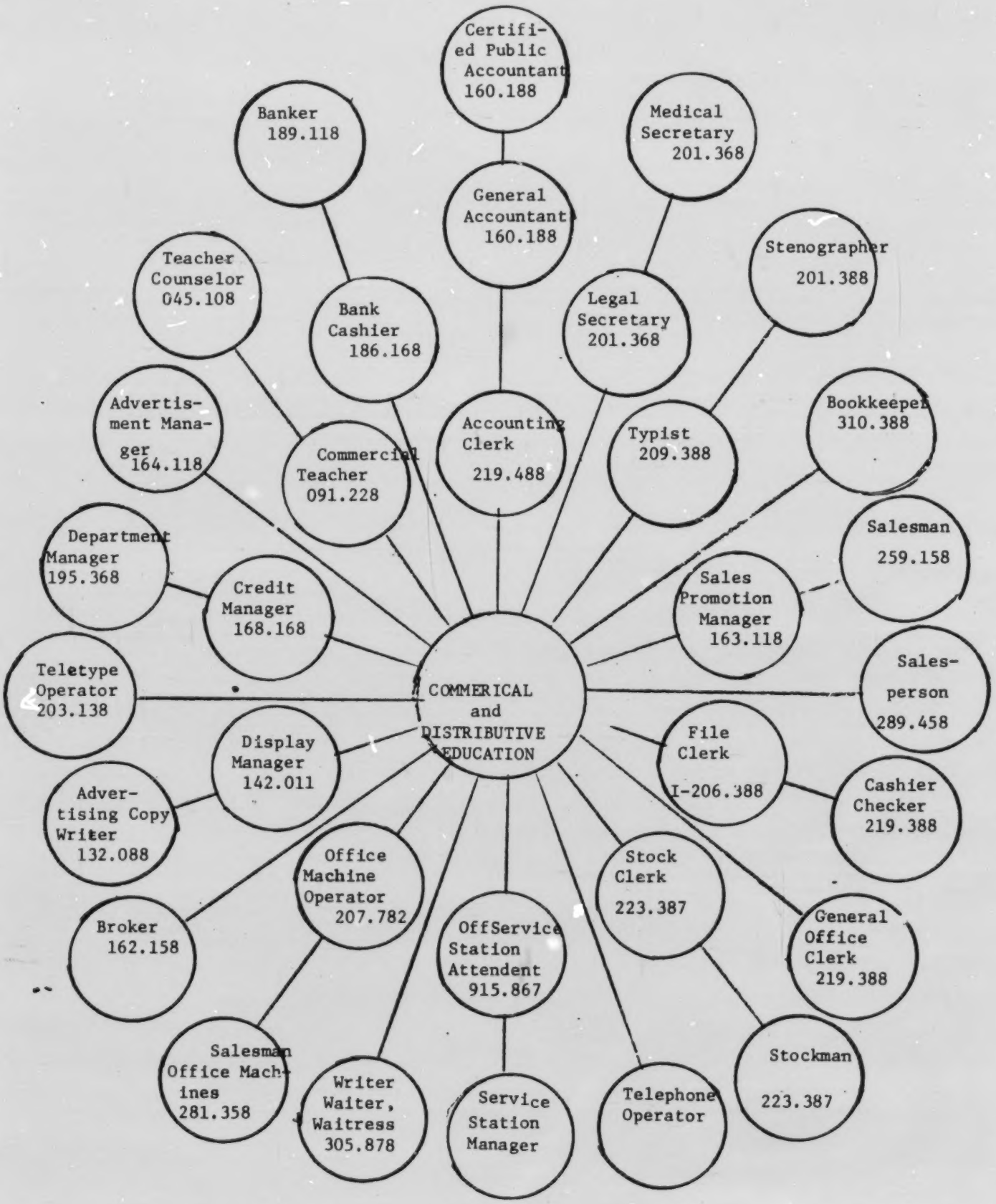
OCCUPATIONAL CLUSTERS

from

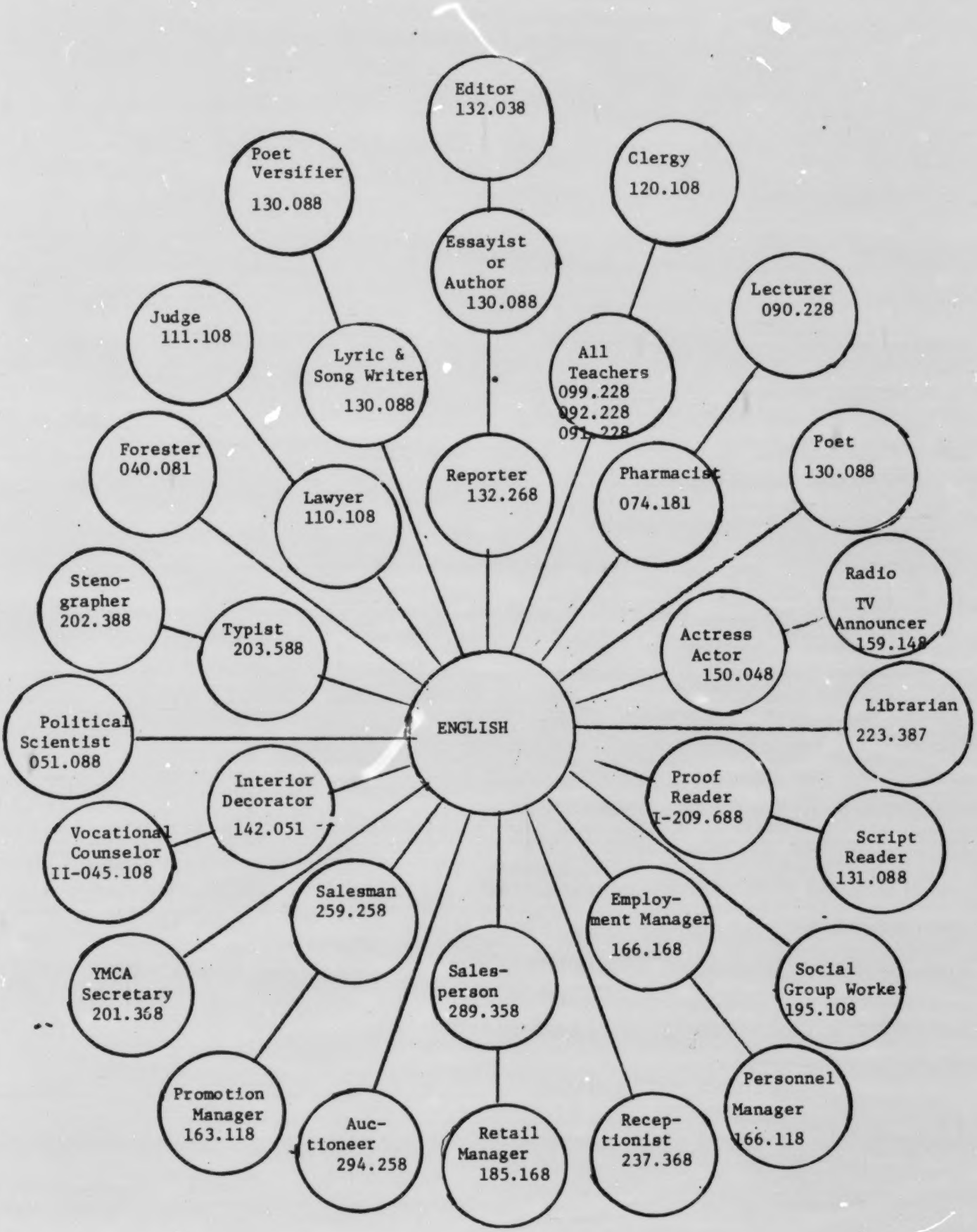
Bismark, North Dakota

Numbers Refer To
Dictionary of Occupational Titles

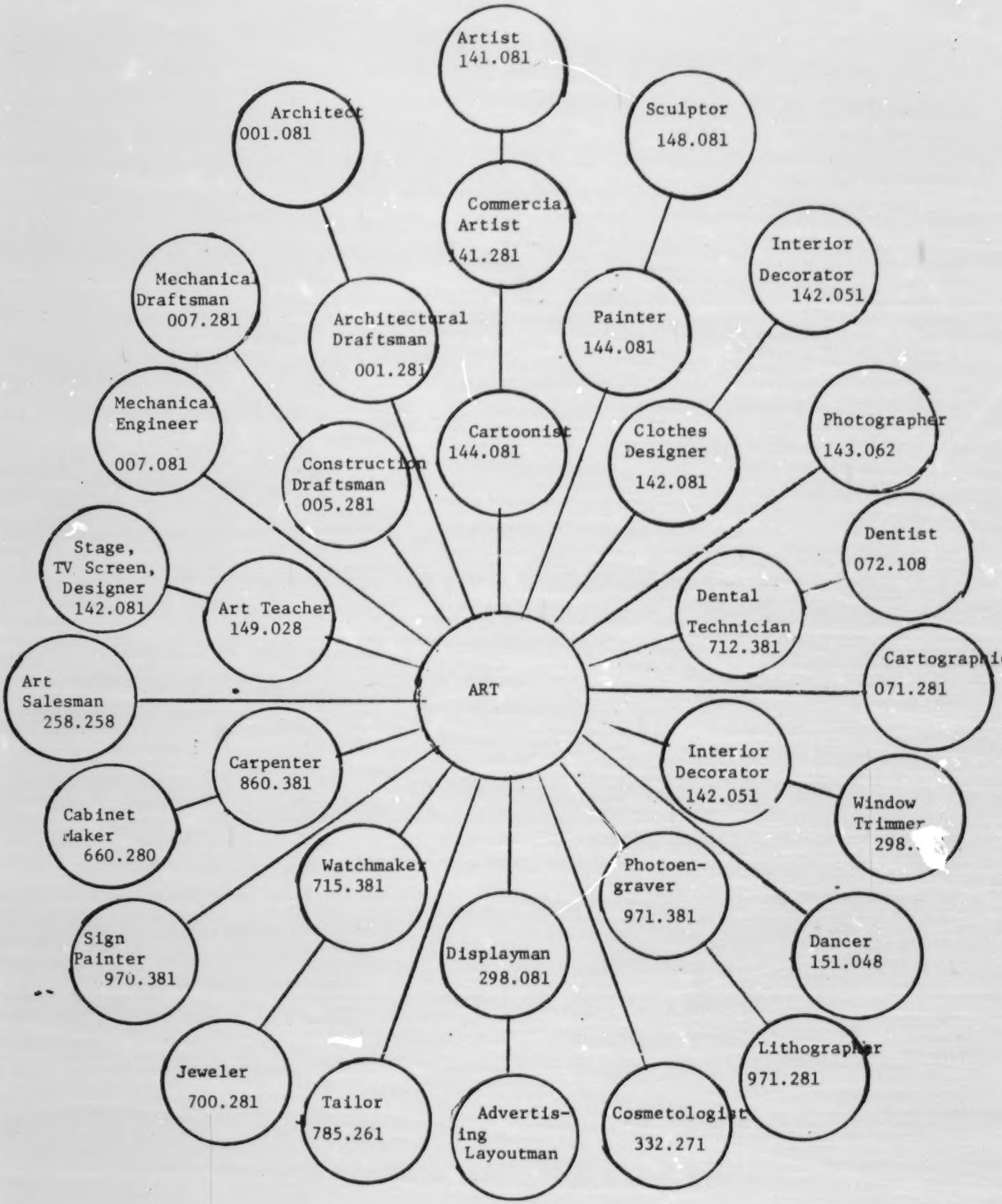
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN
BUSINESS TRAINING AND DISTRIBUTIVE EDUCATION



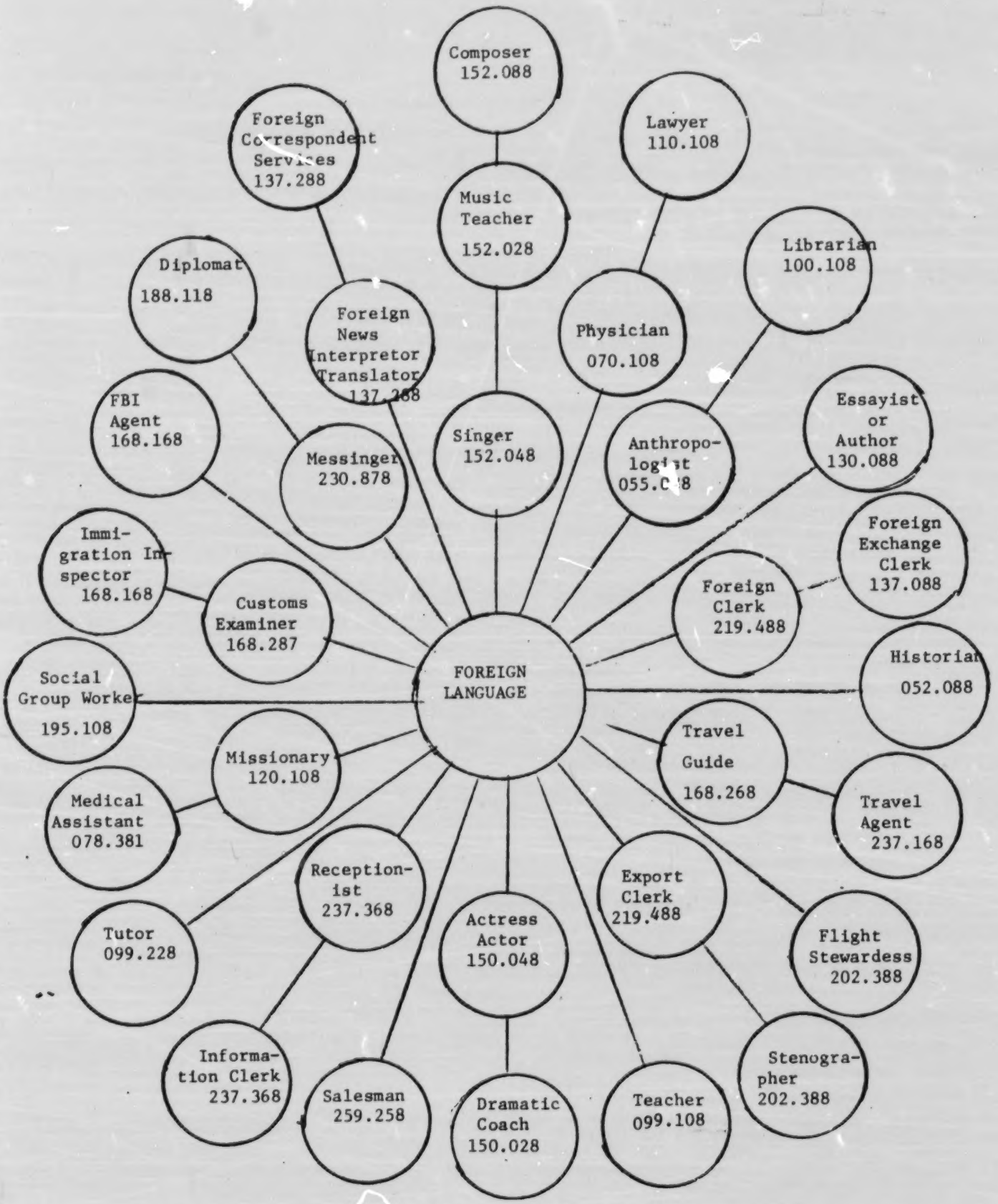
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN ENGLISH



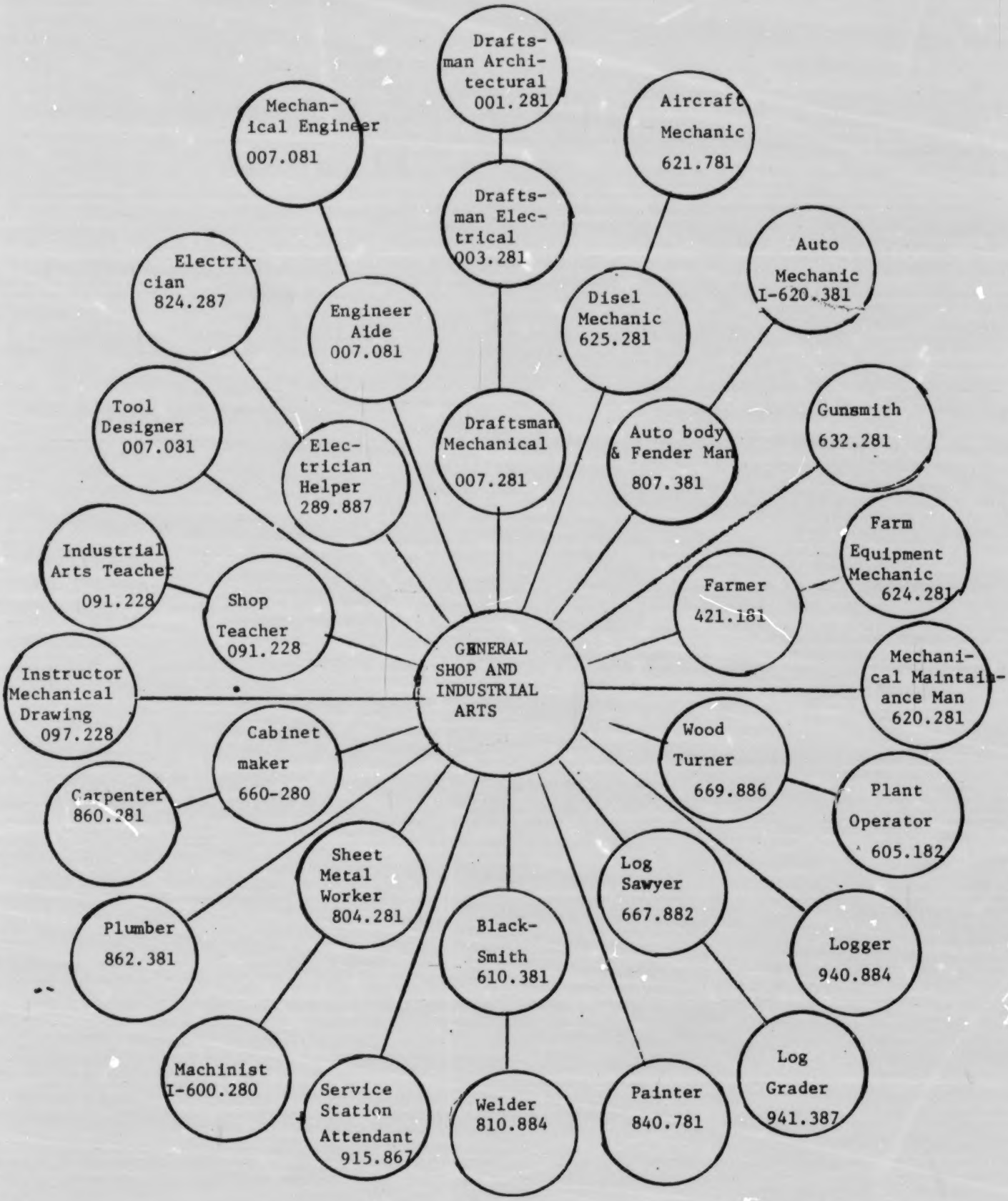
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN ART



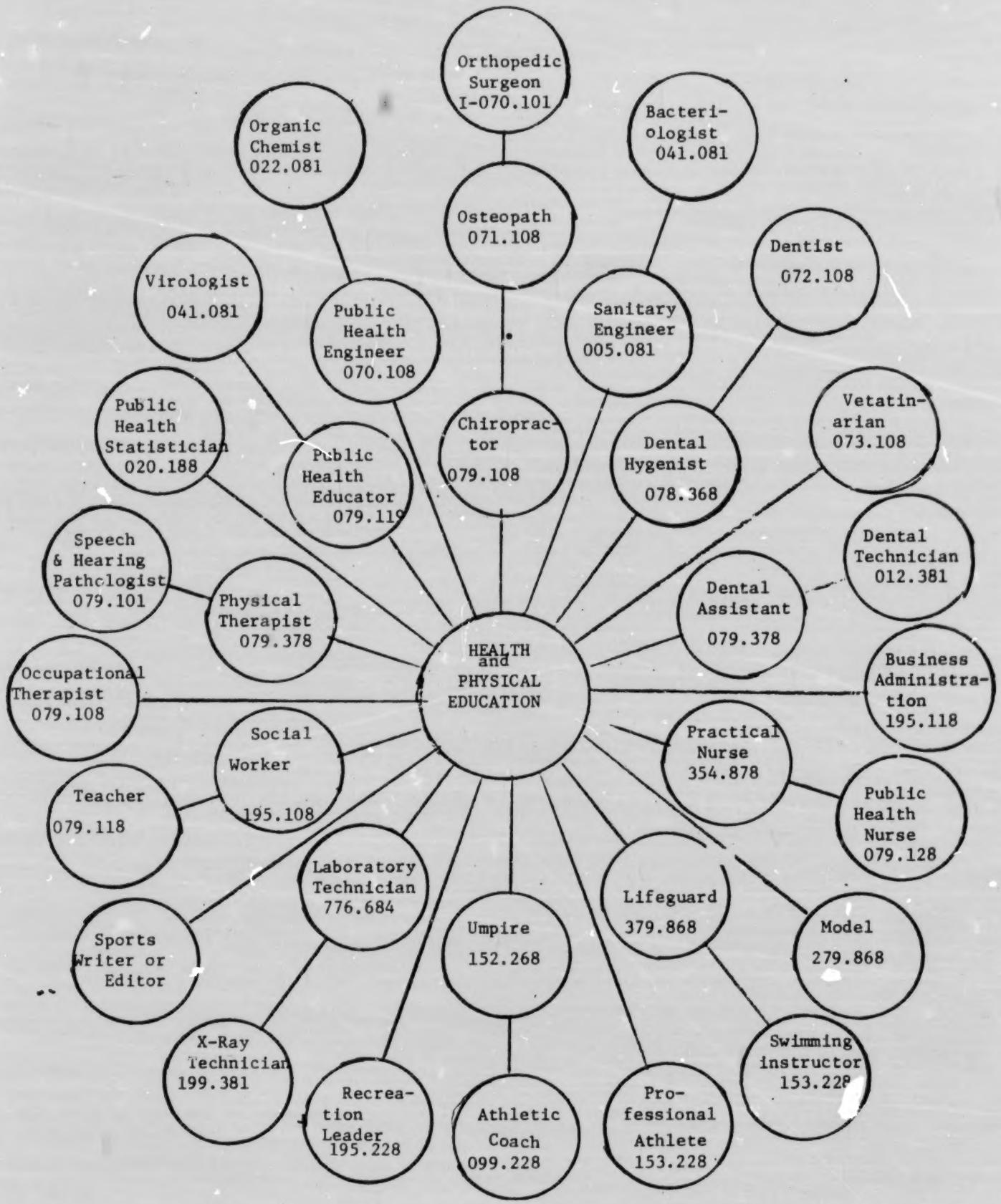
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN FOREIGN LANGUAGE



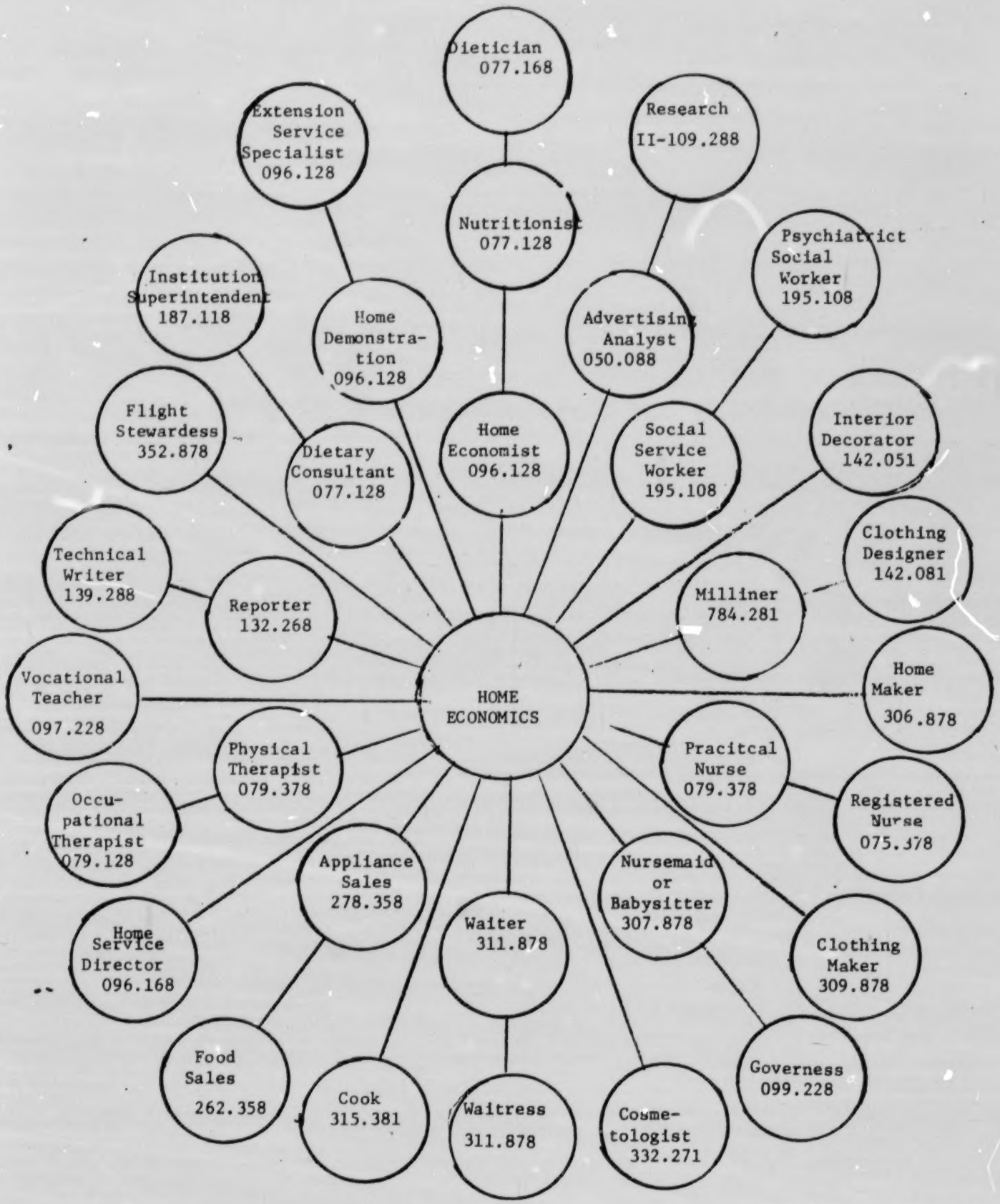
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN
GENERAL SHOP AND INDUSTRIAL ARTS



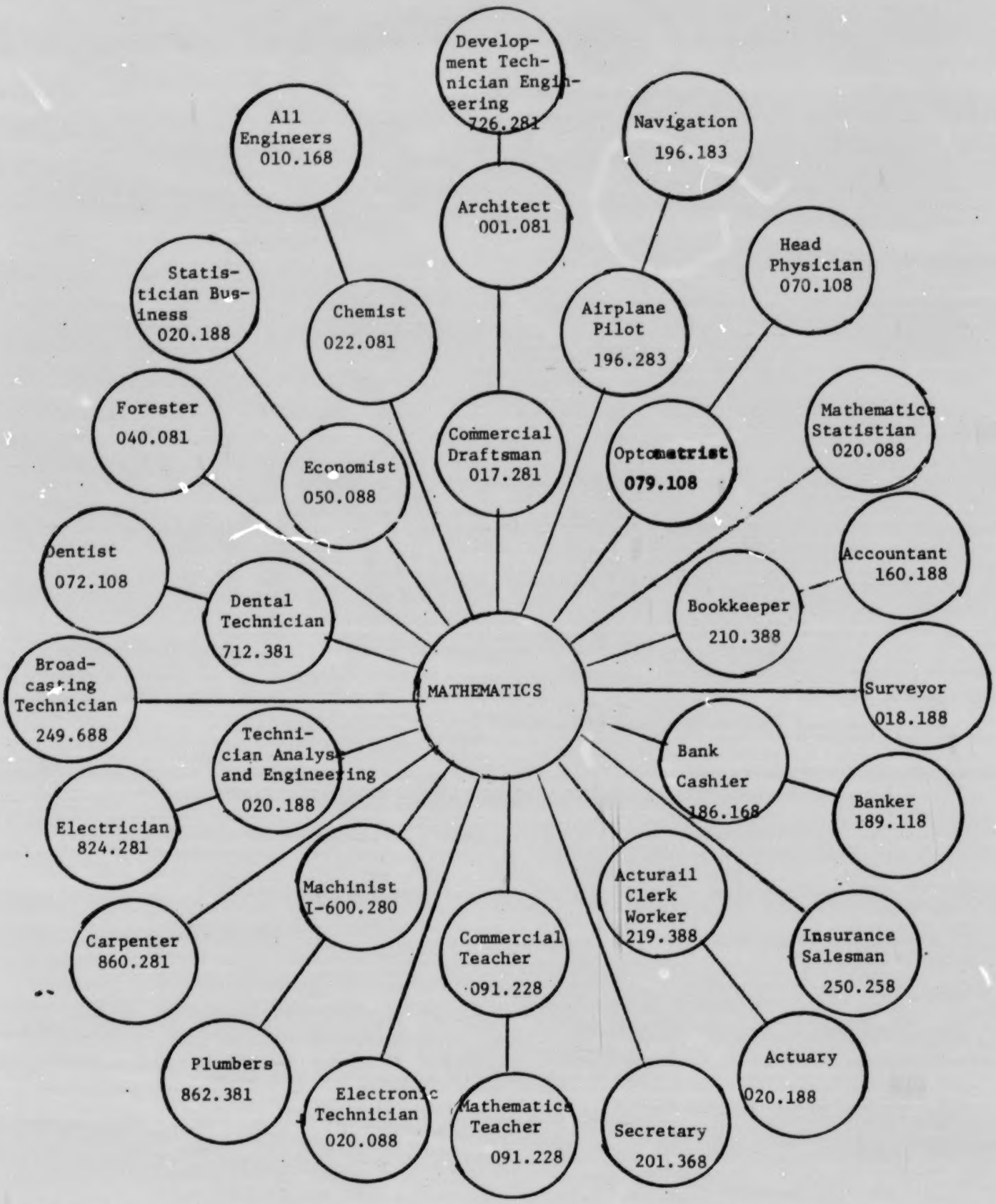
HEALTH AND PHYSICAL EDUCATION



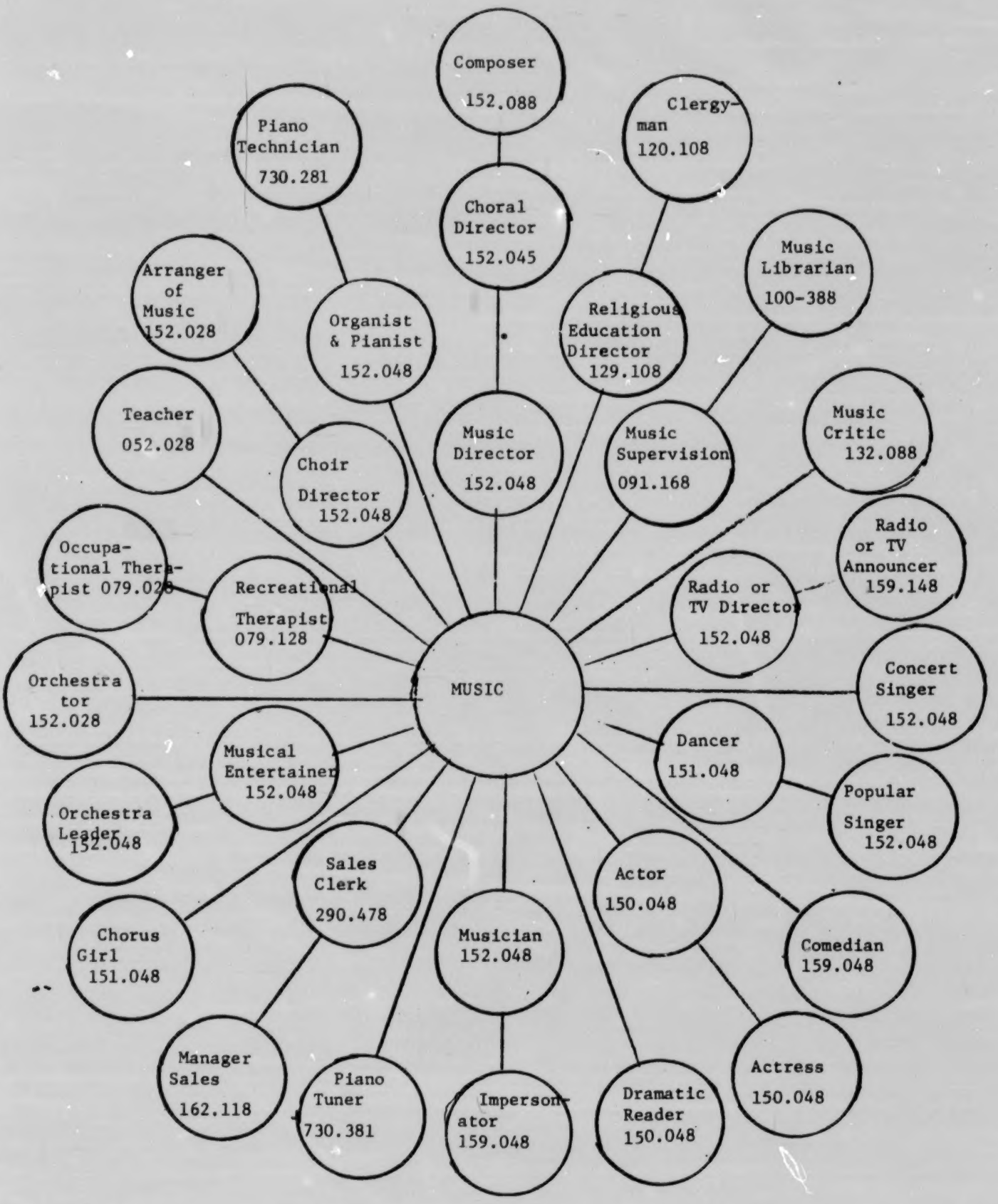
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY TO HOME ECONOMICS



SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN MATHEMATICS



SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN MUSIC



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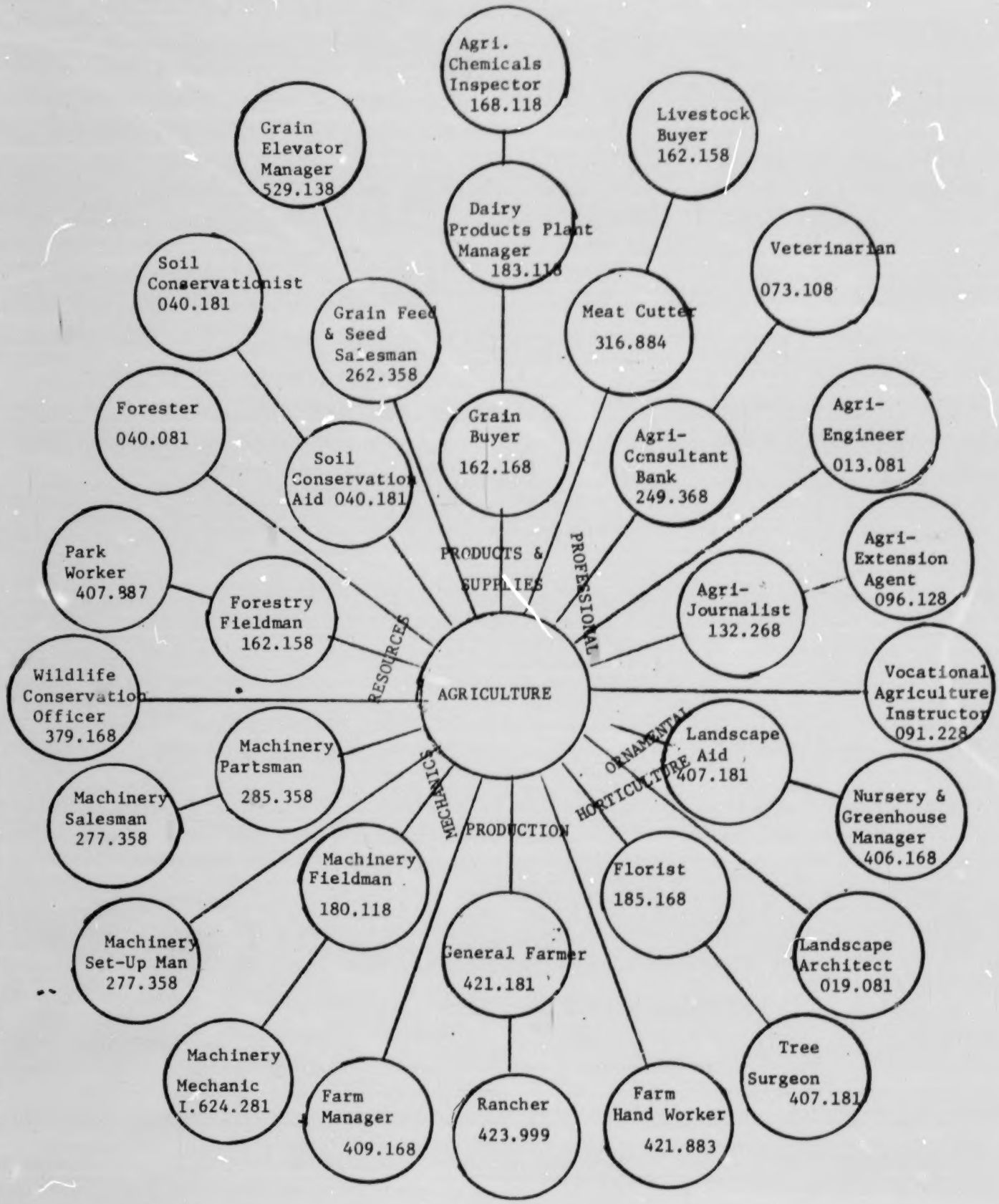

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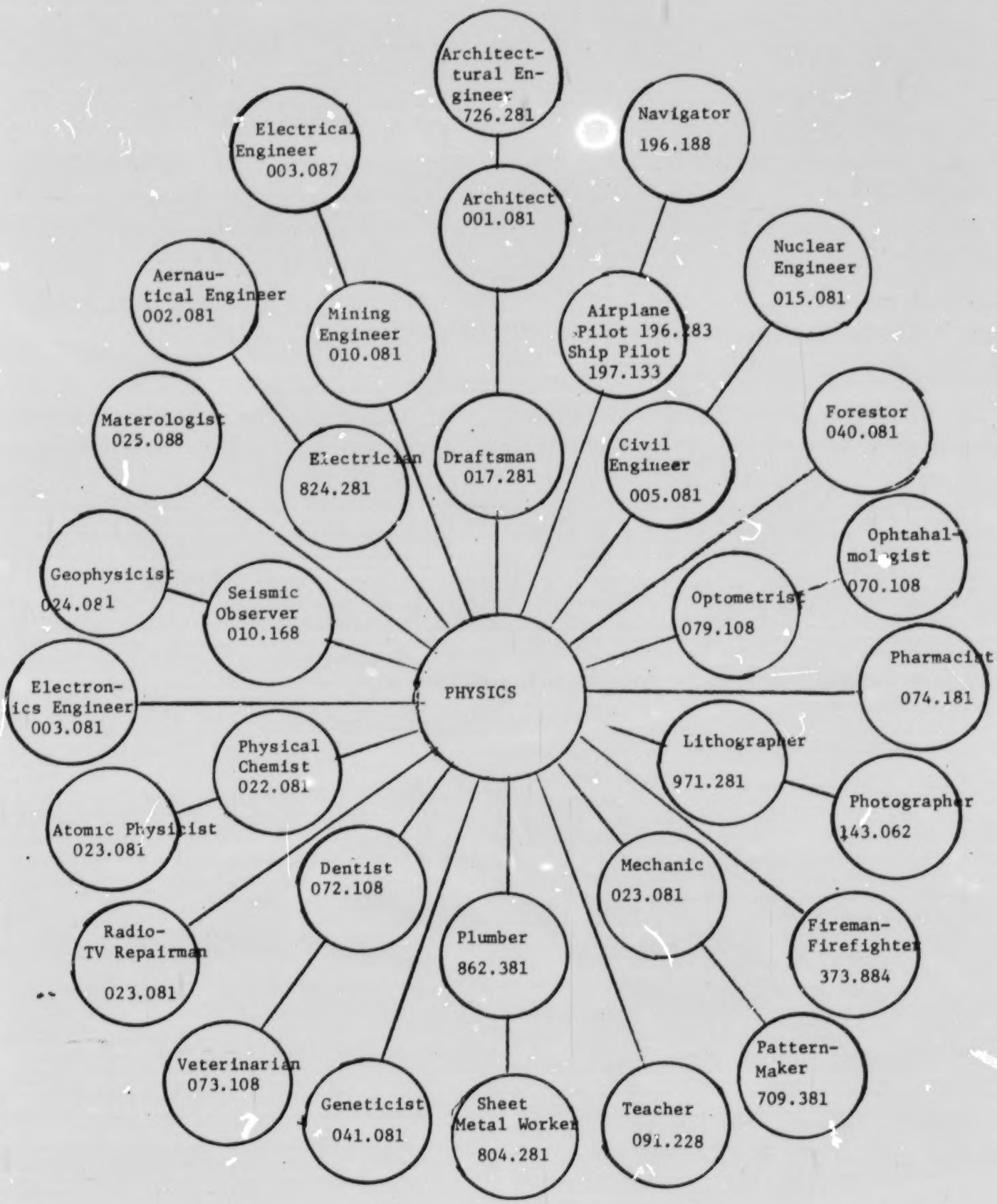
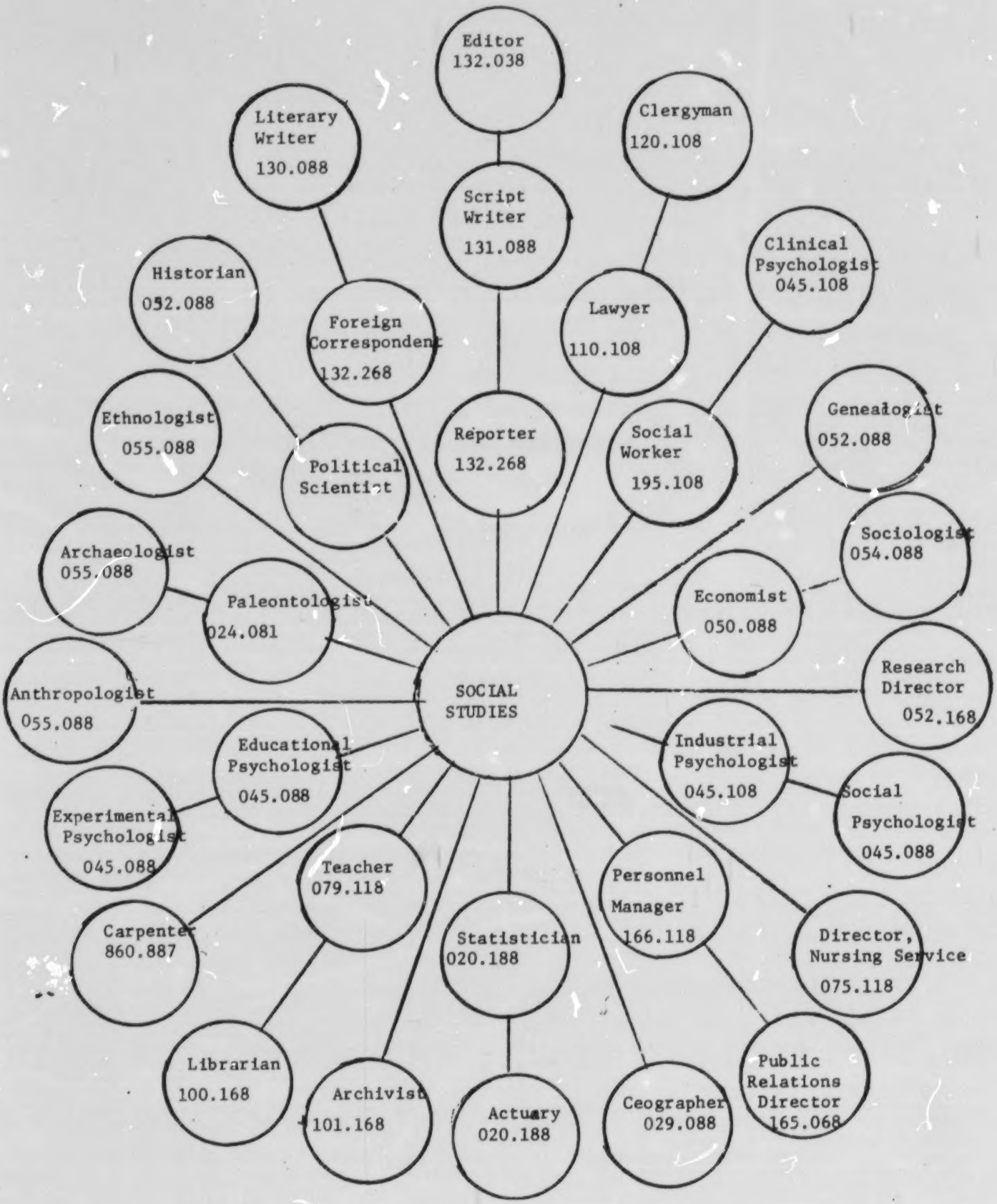
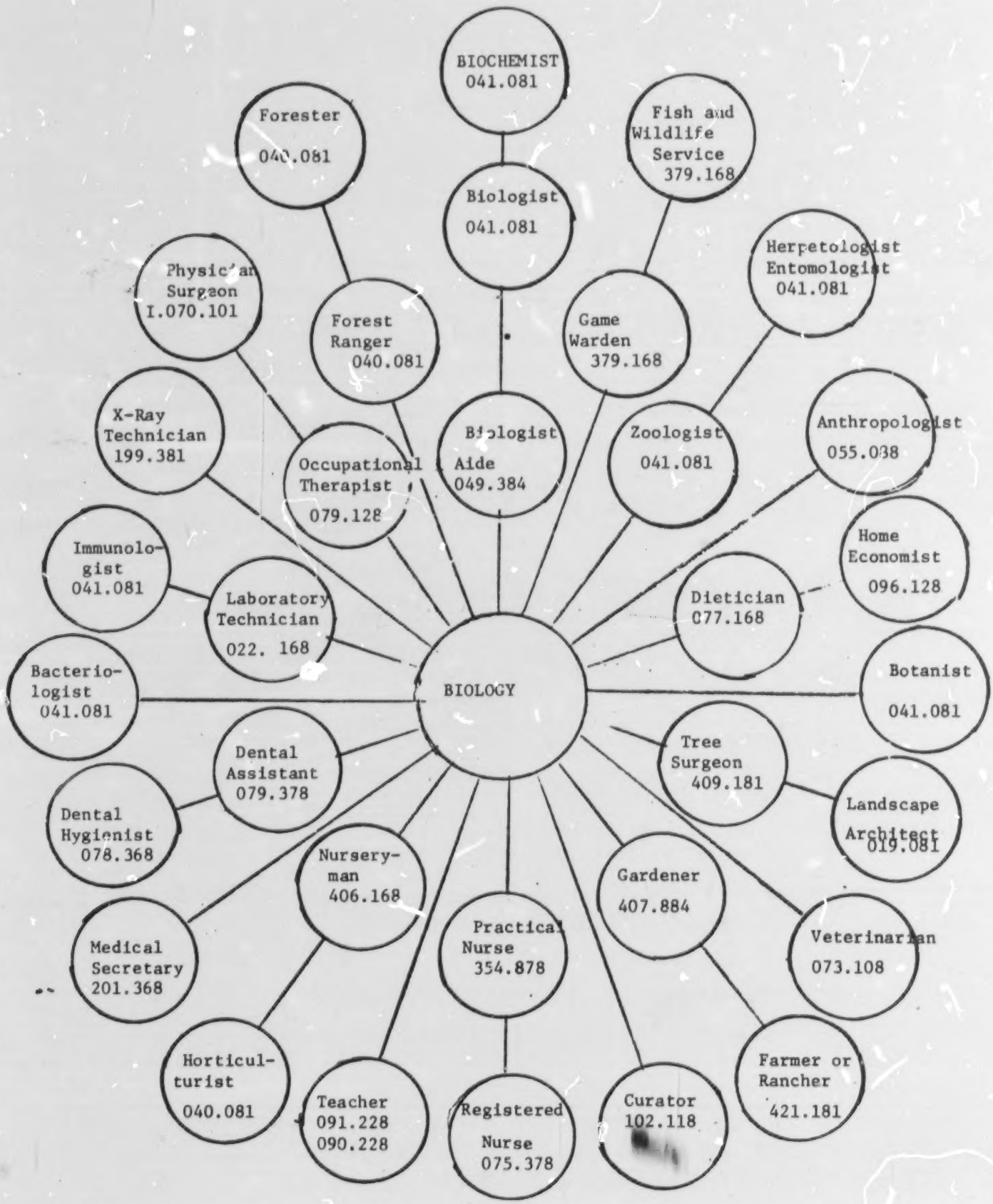


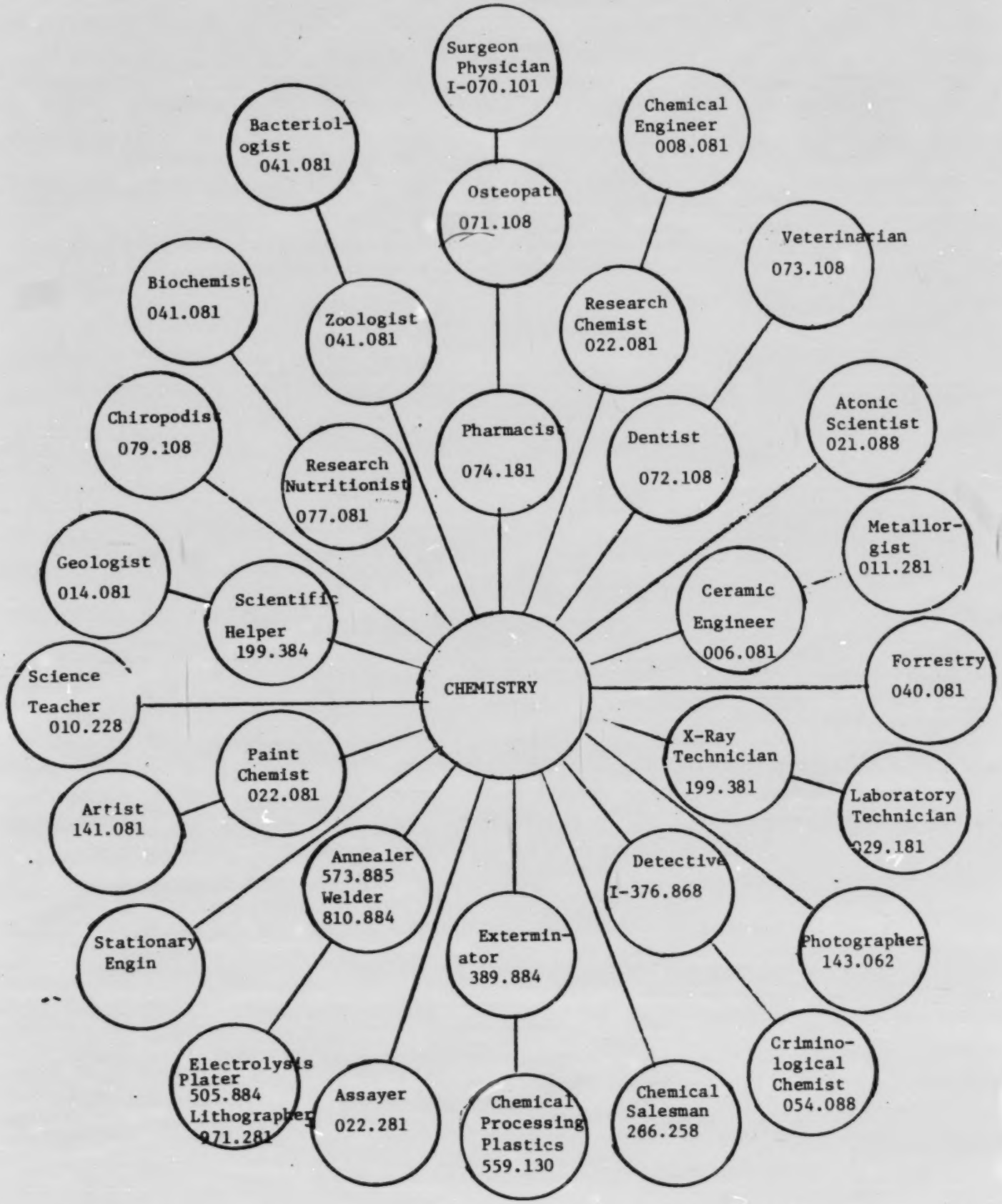
SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN SOCIAL STUDIES



SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN BIOLOGY



SOME OCCUPATIONS RELATED TO INTEREST AND ABILITY IN CHEMISTRY



Fifteen Cluster Arrangement

Service Group

consumer and homemaking
public services
personal services
hospitality and recreation

Business Group

business and office
manufacturing
marketing and distributing
transportation
construction

Science Group

health
environmental control
agri-business and natural resources
marine science

Communication Group

communication
fine arts and humanities

Cluster for
AGRI-BUSINESS AND NATURAL RESOURCES

I. OPERATIONS - FOR ALL CLUSTERS

A. Management
   1. Planning and Policy Administration
   2. Data Interpretation
   3. Personnel and Labor Relations
   4. Communications

B. Mid-Management
   1. Operations Techniques
   2. Data Handling
   3. Task Analysis
   4. Communication Skills

C. Supervision
   1. Operational Procedures
   2. Processing Techniques
   3. Personnel Relations
   4. Communication Skills

D. Personnel
   1. Personnel Practices
   2. Communication Skills
   3. Skill Development
   4. Career Orientation

Cluster for
AGRI-BUSINESS AND NATURAL RESOURCES
(Natural Resources)

I. Support and Regulations

A. Guardianships
1. Indians
2. Eskimos
3. Trust Territories

B. Safety and Regulations
1. Federal
2. State

C. Conservation
1. Soil
2. Minerals and Petroleum
3. Fish and Wildlife
4. Water

II. Research

A. Experimentation
1. Timber
2. Wildlife and Fish
3. Minerals and Petroleum
4. Water
5. Soil

B. Water
1. Pollution Control
2. Quality Control
3. Transportation
4. Desalinization

C. Dissemination
1. Reports and Visual Aids
2. News Media

III. Forestry

A. Production
1. Propagation
2. Management

B. Services
1. Business and Finance
2. Contract
3. Supplies

C. Conservation
1. Fire Control
2. Planting and Thinning
3. Disease and Pest Control

D. Processing and Marketing
1. Logging
2. Saw Mill Operation
3. Pulpwood Manufacture
4. Transportation

IV. Land and Water Management

A. Parks
   1. State
   2. National
   3. Private

B. Inland Waterways
   1. Pollution Control
   2. Commerce
   3. Recreation
   4. Commercial Fisheries

C. Hydro-Electric Power
   1. Federal
   2. State
   3. Private

V. Fisheries and Wildlife

A. Management
   1. Propagation
   2. Protection
   3. Controlled Use

B. Production
   1. Fish Farms
   2. Game Preserves
   3. Wilderness Areas
   4. Conversation

C. Utilization
   1. Commercial Fisheries
   2. Recreation
   3. Hunting and Trapping

VI. Mining and Quarrying

A. Exploration
   1. Geological
   2. Geophysical
   3. Seismographic
   4. Photo-grammetric

B. Production
   1. Excavation
   2. Extraction
   3. Transportation
   4. Mining-benefication

C. Processing and Storage
   1. Smelting
   2. Milling
   3. Refining
   4. Waste Disposal
   5. By-products
   6. Storage

D. Distribution
   1. Marketing
   2. Transportation

VII. Petroleum and Related Products

A. Exploration

   1. Prospect Drilling
   2. Geophysical
   3. Seismographic
   4. Photo-grammetric

B. Production
   1. Drilling
   2. Construction and Maintenance
   3. Pumping
   4. Deep Well Mining - Salt, Sulphur
   5. Extraction
   6. Waste Disposal
   7. Storage

C. Services
   1. Contract
   2. Management Facilities and Equipment
   3. Supplies

D. Distribution
   1. Marketing
   2. Transportation

AGRI BUSINESS AND NATURAL RESOURCES
(Agri-Business)

I. Support and Regulations

A. Inspection and Regulatory
   1. Federal
   2. State
   3. Local

B. Government Programs
   1. Finance
   2. Acreage and Production Controls
   3. Soil and Water Conservation

II. Research

A. Experimentation
   1. Crop Production
   2. Animal Production
   3. Food and Fiber Processing

B. Dissemination
   1. Preparation of Reports and Visual Materials
   2. Federal Extension Service
   3. News Media

III. Production

A. Crops
1. Planting
2. Cultivating
3. Harvesting

B. Animals and Fish
1. Breeding
2. Raising
3. Feeding
4. Management

C. Horticultural Products
1. Propagating
2. Cultivating
3. Harvesting
4. Landscaping

IV. Service

A. Supply
1. Machinery
2. Seed
3. Feed
4. Chemicals
5. Veterinary

B. Business

1. Finance
2. Insurance
3. Contracting
4. Management

V. Processing and Marketing

A. Selecting and Purchasing
1. Inspection
2. Grading
3. Transportation

B. Processing
1. Food
2. Fiber
3. By-Products

C. Distribution
1. Cooperatives
2. Farm Organizations
3. Market Forecast Services
4. Commission Buyers
5. Packaging
6. Storage
7. Transportation

Cluster for
BUSINESS AND OFFICE OCCUPATIONS

I. Record Systems and Control

A. Accountant
1. Financial Reporting
2. Costs Analysis
3. Auditing
4. Tax Analysis

B. Bookkeeper
1. Record Information
2. Reporting
3. Data Transfer

C. Systems Analysts
1. Analyze
2. Design
3. Summarize

D. Computer Programmer
1. Interpretation
2. Analyze
3. Diagram
4. Language Conversion

E. Computer Operator
1. Interpretation
2. Assimilation
3. Monitoring
4. Editing

II. Secretarial

A. Secretary
1. Information Processing
2. Scheduling and Reporting
3. Records Control
4. Public Relations

B. Secretary Specialist (Executive, Legal, Medical)
1. Information Processing
2. Scheduling and Reporting
3. Records Control
4. Public Relations
5. Administrative Activity
6. Terminology Manipulation

C. Stenographer
1. Correspondence
2. Information Recording
3. Information Distribution

III. Clerical

A. General Office Clerk
1. Report and Record Compiliation
2. Typing Activity
3. Office Machine Operation

4. Cash Receiving and Distribution
5. Mail Processing
6. Inventory Records Maintenance

IV. B. Clerk Typist
1. Typing Activity
2. Record and Report File Control

C. Machine Transcriber
1. Correspondence
2. Information Recording
3. Information Distribution

D. Office Machine Operator
1. Record Information
2. Reproduce Information
3. Data Calculation
4. Store and Retrieve Information

V. Administrative

A. Office Supervisor
1. Interpret
2. Instruct
3. Coordinate
4. Monitor
5. Evaluation

B. Office Manager
1. Office Standards
2. Planning
3. Negotiation
4. Evaluation
5. Personnel and Related Work

C. Fiscal Manager
1. Budget Management Analysis
2. Data-Methods Analysis
3. Systems-Procedures Analysis

VI. Business Ownership

A. Entrepreneurship
1. Dealership Operation
2. Franchise Operation
3. Independent Operation
4. Partnership

B. Corporation
1. Dealership Operation
2. Franchise Operation

Cluster for Construction

I. Design

- A. Architectural
  1. Residential
  2. Commercial
  3. Industrial
  4. Landscape
- B. Civil
  1. Civil
  2. Mechanical
  3. Electrical

II. Contracting

- A. Crafts
  1. Masonry
  2. Metal
  3. Wood
  4. Glass and Plastic
- B. Materials Procurement
  1. Manufactured
  2. Natural
  3. Synthetics
- C. Equipment Operations
  1. Air
  2. Electric
  3. Mechanical
  4. Hydraulic
- D. Office Operations
  1. Estimating
  2. Scheduling
  3. Expediting
  4. Security Operations

III. Interior

- A. Design
  1. Layout
  2. Illustration
- B. Decoration
  1. Painting/Papering
  2. Draperies
  3. Decor
- C. Furnishings
  1. Furniture
  2. Floor Covering
  3. Lighting Fixtures

IV. Landscaping

A. Nursery Operations
   1. Horticultural Installations
   2. Turf Installations
   3. Sprinkler Systems

B. Grounds Maintenance
   1. Equipment Operations and Maintenance

V. Land Development

A. Site Preparation
   1. Site Layout
   2. Earth Moving Operations

B. Utilities
   1. Communications
   2. Gas and Electric
   3. Water
   4. Sewer
   5. Storm Drainage

VI. Fabrication and Installation

A. Field Operations
   1. Foundation Work
   2. Structural Work
   3. Finishing Operations
   4. Prefabrication

B. Building Systems
   1. Prefabrication
   2. Field Assembly

C. Materials Fabrication
   1. Materials Testing
   2. Forming and Shaping

Cluster for
Communication and Media

I. Publishing

A. Graphic Arts
1. Printing Processes
2. Silk Screen Making and Printing
3. Bookbinding

B. Journalism
1. Creative Writing
2. Reporting
3. Editing
4. Publication

C. Commercial Art
1. Illustration
2. Animation
3. Layout Processes

II. Audio/Visual

A. Photographic Reproduction
1. Lithography, Photography and Plate Making
2. Photo Engraving
3. Commercial Photography
4. Photographic Laboratory and Darkroom Processes

B. Recordings
1. Industrial Electronics Systems
2. Audio Systems

III. Language

A. Signs/Symbols, Design, Producation
1. Sign Painting
2. Drafting/Illustrating
3. Advertising
4. Servicing/Fabrication

B. Equipment Design Production
1. Research and Development

IV. Broadcasting

A. Radio/Television
1. Electronics Systems
2. Electromechanical Systems
3. Instrumentation
4. Radio and T. V. Servicing
5. Broadcasting
6. Radio and Television Announcing

B. Satellite Transmission
1. Electronics Systems
2. Electromechanical Systems
3. Micro Wave Systems
4. International Communications
5. Federal Communications

C. Laser Transmission
   1. Electronics Systems
   2. Optics
   3. Space Communications

V. Line Communications

A. Data Transmission
   1. Systems
   2. Programming
   3. Computer and Console Operations
   4. Peripheral Equipment Operations

B. Telegraph
   1. Communications Systems Operations
   2. Line Servicing
   3. Installing and Maintenance

C. Telephone
   1. Information Communications
   2. Central Office Equipment
   3. Installation and Maintenance
   4. Line and Cable Splicing
   5. Telephone and PBX Installation Maintenance

Cluster for
Consumer and Homemaking Education --Related Occupations

I. Food Service Industry

A. Production and Management
1. Menu Planning and Controlling Cost
2. Food Purchasing
3. Food Storage and Inventory
4. Quantity Food Preparation
5. Equipment Care and Maintenance
6. Safety Maintenance
7. Cleaning and Sanitation
8. Controlling Quality

B. Service and Delivery
1. Maintenance and Food Quality
2. Counter Attending
3. Setting Up Tables
4. Serving Food
5. Packaging Food
6. Delivery of Food

C. Testing and Product Development
1. Developing Recipes
2. Experimental Testing of Food
3. Evaluating Food Product
4. Food Demonstration

D. Nutrition
1. Analysis of Dietary Needs
2. Menu Planning in Relation to Dietary Needs
3. Counseling re Nutritional Needs
4. Teaching Nutrition

II. Clothing, Apparel, and Textile Industry

A. Production and Management
1. Spinning Yarn
2. Weaving Fabric
3. Cutting Garment
4. Marking and Assembling
5. Serving and Stitching
6. Trimming and Finishing
7. Pressing
8. Inspecting and Checking

B. Design
1. Creating and Designing Garments
2. Patternmaking
3. Grading Pattern

C. Clothing Alteration and Maintenance
1. Laundering
2. Dry Cleaning
3. Repairing
4. Alteration

D. Product Development
   1. Developing New Design or Product
   2. Experimental Testing
   3. Evaluation
   4. Demonstrating Design or Product

III. Child Care, Guidance, and Teaching

A. Family Child Care Homes
   1. Nurturing of Individual Child
   2. Caring for Physical Needs of Child
   3. Protecting the Child
   4. Guiding and Teaching Child
   5. Compliance with Regulations
   6. Adjusting Household to Meeting Needs of Child

B. Institutional Child Care Services
   1. Providing Physical Care of Children
   2. Nurturing and Guidance of Children
   3. Planning and Adapting Programs to Children with Varying Needs
   4. Teaching of Children
   5. Supervision of Children

C. Community Child Care and Guidance Services
   1. Caring for Physical Needs of Children
   2. Planning and Scheduling for Children's Activities
   3. Supervision of Children
   4. Guiding and Nurturing of Children
   5. Housekeeping and Maintenance
   6. Operating, Management, and Supervision

IV. Family and Community Services

A. Public Housing
   1. Home Management and Family Counseling
   2. Housekeeping and Household Maintenance
   3. Consumer Counseling

B. Social Welfare
   1. Assisting Welfare Agency
   2. Family Planning Counseling
   3. Consumer Counseling
   4. Assisting the Aging

V. Institutional Household Maintenance Services

A. Household Maintenance
   1. Floors, Walls, Window Maintenance
   2. Maintenance and Care of Furnishings and Household Equipment
   3. Selecting Equipment and Supplies

B. Institutional Maintenance
   1. Floor and Wall Maintenance
   2. Window Maintenance
   3. Furnishings and Equipment Maintenance
   4. Checking and Inspecting

C. Product Testing
   1. Analysis of Market for Cleaning Supplies and Equipment
   2. Comparative Testing
   3. Evaluation of Results
   4. Communicating Recommendations

VI. Dual Role-Homemaking Inter-Changeable Technician for Homemaking

A. Home Management
   1. Identifying Family Goals, Values and Standards
   2. Decision Making
   3. Identifying and Planning of Household Tasks
   4. Developing Homemaking Skills
   5. Organizing, Implementing, and Adjusting Plan of Operation
   6. Evaluating Results from Operations

B. Consumerism
   1. Assessment of Needs
   2. Comparative Analysis of Products
   3. Decision Making and Utilization of Resources
   4. Purchasing
   5. Utilization of Product
   6. Evaluation of Product

C. Personal-Family Relationships
   1. Assessment of Individual and Family Needs
   2. Identifying Individual and Family Goals, Values, and Standards
   3. Developing Relationship and Problem Solving Skills
   4. Nurturing of Family Members
   5. Communication

VII. Housing Design, Interior Decoration

A. Design and Decoration
   1. House Designing and Planning
   2. Interior Decorating
   3. Counseling on House Design and Decoration

B. Furnishings Selectivity
   1. Selection of Paints and Finishes
   2. Selection and Construction of Draperies, Slipcovers
   3. Selecting and Combining Home Accessories
   4. Selection of Household Equipment

C. Refurbishing and Refinishing
   1. Upholstering
   2. Refinishing Furniture
   3. Caning
   4. Repairing Furniture

D. Product Testing
   1. Serviceability Testing of Furnishings
   2. Comparative Testing of Household Equipment
   3. Counseling on Home Furnishings and Equipment
   4. Demonstration on Home Furnishings and Equipment

Cluster for Environment

I. Operations

A. Management
1. Planning and Policy Administration
2. Data Interpretation
3. Personnel and Labor Relations
4. Communications

B. Mid-Management
1. Operations Techniques
2. Data Handling
3. Task Analysis
4. Communication Skills

C. Supervision
1. Operational Procedures
2. Processing Techniques
3. Personnel Relations
4. Communication Skills

D. Personnel
1. Personnel Practices
2. Communication Skills
3. Skill Development
4. Career Orientation

II. Soil and Mineral Conservation and Control

A. Research and Experimentation
1. Hydroponic Plant Culture Development
2. Soil Transplant Science Development for Non-Arable Area Utilization
3. Soil or Surface Stabilization and Erosion Resistance Systems Development
4. Reclamation of Alkaline and Other Checimally Killed Soil
5. Reduction of Total Water Required for Plant Production
6. Development of Mineral Recovery Processes for Low Grade Ores
7. Mineral Recycling Processes Development

B. Soil Management
1. Planting
2. Cultivating
3. Harvesting
4. Soil Nutrient and Water Conserving Practices
5. Soil Stabilization and Erosion Prevention
6. Fertilizer, Weed Killer and Other Chemical Utilization

C. Mineral Extraction
1. Exploration
2. Excavation
3. Transportation
4. Production
5. Land Reclamation
6. Wastewater Recycling
7. Airborne Pollutant Control

III. Soil and Mineral Conservation and Control

A. Collection Data and Analysis and Processing
   1. Monitoring and Recording
   2. Sample Collection
   3. Water Analysis

B. Utilization Control
   1. Pollution Regulation Enforcement
   2. Mine and Dump Restoration Regulation Control
   3. Monitoring and Enforcement of Mineral Production Quotas

IV. Space and Atmospheric Monitoring and Control

A. Research and Experimentation
   1. Instrumental Sampling, Analysis and Monitoring
   2. Effects of Outer-Atmospheric Pollution
   3. Reduction of Internal Combustion Engine Pollution
   4. Effects of Sunlight on Air Pollution

B. Air Pollution Abatement and Control
   1. Chemical Analysis and Monitoring
   2. Engine Emission Inspection and Monitoring
   3. Industrial Pollution Identification and Control
   4. Design of Non-Polluting Industrial Processes
   5. Anti-Pollution Education

C. Meteorological Processes
   1. Chemical and Particulate Pollution Effects on Weather
   2. Smog Condition Prediction
   3. Analysis of Weather Factors Related to Urban or Industrial Planning

D. Utilization Control
   1. Anti-Air Pollution Law Enforcement
   2. Long-Range Planning for Reduction of Pollution from Transportation Sytems

V. Environmental Health Services

A. Assessment
   1. Survey of Environmental Conditions
   2. Monitoring Potential Hazards
   3. Recording and Reporting

B. Maintenance
   1. Food Services and Handling
   2. Hazards Cintrol
   3. Waste Disposal
   4. Pest and Varmint Control

   Water Sanitation

C. Services
   1. Regulation Enforcement
   2. Education
   3. Mass Health Services

D. Administration
   1. Govermental Regulating
   2. Community Services
   3. Institutional Operations
   4. Home Implementation
   5. Industrial Safety Engineering

VI. Development and Control of Physical Man-Made Environment

A. Urban Planning
   1. Inter-Area (County) Planning for Urban Development
   2. Demographic and Population Trend Survey
   3. Financial Resources Analysis
   4. Utility Services Planning
   5. Police and Law Enforcement Systems Design
   6. Education, Health and Social Service Planning
   7. Long-Range Space Utilization Planning

B. Urban Development and Renewal
   1. Design and Construction (Reconstruction) of Public Facilities
   2. Architectural and Building Codes Enactment and Enforcement
   3. Population Growth Trend Monitoring

C. Rural Development
   1. Long-Range Land Water Resource Use Planning
   2. Rural Services Planning and Development
   3. Rural Facilities Design and Construction
   4. Rural Utilities Planning and Development

D. Ornamental Horticulture
   1. Design and Culture of Land Covers and Stabilizers
   2. Design and Culture for Beautification
   3. Design and Culture for Behavioral Control
   4. Design and Culture to Maintain Open Space

E. Civil Technology Processes
   1. Design and Construction of Streets, Highways, Bridges, Roadways and Airfields
   2. Design and Construction of Waterways, Dams, Reservoirs and Hydroelectric Plants
   3. Design and Construction of Sanitation Systems
   4. Design and Construction of Towers, Buildings and Framework

F. Noise Abatement and Control
   1. Noise Level Monitoring
   2. Noise Level Ordinance Enforcement
   3. Accoustical Design and Construction

G. Solid Waste Pollution Abatement and Control
   1. Development and Enforcement of Systems for Solid Waste Disposal
   2. Recycle Solid Waste Materials
   3. Development and Implementation of Systems for Garbage Disposal

VII. Forest, Range, Shore, and Wildlife Conservation and Control

A. Research and Experimentation
   1. Development of Species Resistant to Disease
   2. Parasite Control Methods Development
   3. Shoreline Stabilization and Restoration
   4. Systems Development
   5. Swamp and Marsh Land Elimination (Ecological Effects Of)
   6. Chemical Effects on Species and Ecological Systems
   7. Species Life Cycle Discovery

B. Resource Survey and Monitoring
   1. Geographical Species Survey and Description
   2. Monitoring of Ecological Balance of Species
   3. Ecological Imbalance Detection
   4. Species Harvesting Data Collection and Reporting

C. Resource Development
   1. Tourist Service Industries Development
   2. Reforesting and Replanting
   3. Harvesting Practices Development and Enforcement
   4. Fish and Game Repopulation
   5. Public Awareness Development
   6. Sport and Recreational Facilities Development

D. Resource Protection
   1. Construction of Access Roads
   2. Public Lands Creation, Protection and Management
   3. Forest and Range Disease and Parasite Control
   4. Enforcement of Timber, Game and Wildlife Laws
   5. Construction of Flood and Fire Control Structures
   6. Development and Construction of Optimum Environment for Maintenance of Ecological Balance
   7. Instrumentation and Airborne Fire and Dection and Fighting Capability Development

E. Utilization Control
   1. Sanitation
   2. Education
   3. Utilization and Harvest Regulation Enforcement

VIII. Water Resource Development, Conservation and Control

A. Research and Experimentation
   1. Instrumental Mateorological Data Collection
   2. Meteorological and Watershed Survey and Monitoring
   3. Water Table - Land Cover Relationships Survey and Analysis
   4. Water Disalinization
   5. Underground Waterflow Systems Discovery and Charting
   6. Water Purification Systems Development

B. Water Pollution Abatement and Control
   1. Treatment Plant Construction and Operation
   2. Watershed and Reservoir Systems Development and Operation
   3. Chemical Analysis and Monitoring

4. Chemical and Thermal Pollution Prevention
5. Bacteriological Analysis and Monitoring
6. Industrial Pollution Detection and Monitoring
7. Anti-Pollution Education

C. Civil Technology Processes
1. Distribution and Collection Systems Development
2. Water and Wastewater Treatment Systems Development
3. Watershed Survey and Mapping
4. Drainage Systems and Development
5. Irrigation, Reservoir, Canals and Waterways Development

D. Recreation Development and Management

1. Game and Fish Propagation, Harvesting and Control
2. Camps, Parks, and Docking Facility Development
3. Marine Management and Regulation
4. Boat Inspection and Use Regulation
5. Park Operation and Management

E. Utilization Control
1. Water (Riparian) Rights Laws
2. Regional Watershed Agreements
3. Pollution Control Regulations and Enforcement Legislative Prohibition of Use of Non-Biodegradable Chemicals

Cluster for
Fine Arts and Humanities

I. Fine Arts

A. Creating
1. Painting
2. Printmaking
3. Sculpture
4. Musical composition

B. Performing
1. Dance
2. Dramatic Arts
3. Music
4. Film-radio-television

C. Performing Arts Design
1. State Set design
2. Stage lighting
3. Costume design

D. Performing Arts Production
1. State set construction
2. Stage set construction
3. Costume production
4. Stage management

E. Artist Management
1. Human relations-performing
2. Public relations

F. Visual and Graphics Design
1. Illustration
2. Industrial design
3. Fashion design
4. Environmental design

G. Media
1. Film and tape editing
2. Film processing
3. Camera and recording operation

II. Humanities

A. Creative Writing
1. Novel
2. Poetry
3. Essay
4. Drama
5. Short Story

B. Languages
1. Foreign Languages classical and modern
2. Linguistics
3. English Language

C. History
1. Cultures

Cluster for
Health Occupations

I. Health Information Systems

A. Medical Records
1. Maintaining Patient Records
2. Microfilming, Storing and Retrieving
3. Transcribing
4. Coding and Indexing
5. Report Preparation and Transmission
6. Preparing Original Birth Death Certificates

B. Medical Library Science
1. Storing and Retrieving Publications
2. Deleting and Dispensing
3. Report Preparation
4. Research
5. Transmission

C. Medical Illustration and Photography
1. Bio Medical Photographing
2. Film Preparation and Projection
3. Programming Audio-Visual Presentations
4. Graphic Arts

D. Vital Statistics
1. Official Recording of Births, Deaths, Marriages, Divorces and Other Information as Required
2. Maintaining Official Records
3. Retrieving and Dispensing Information
4. Preparing Reports and Statistical Data
5. Providing Copies of Official Records

II. Health Services Delivery

A. Health Maintenance
1. Immunizing
2. General Screening
3. Communicable Disease Control
4. Health Education

B. Community Health Services
1. Mental Health Clinic Service
2. Visiting Nurse Service
3. Home Health Service
4. Water, Food, and Waste Control
5. Case Finding

C. Hospital and Long Term Care Services
1. Patient Care
2. Diagnostic Processes
3. Therapeutic Processes
4. Administrative Support Services
5. Restorative Processes

D. Pediatric Care and Services
1. Newborn Clinic Service

2. Health Screening for Pre-School and School Children
3. Medical Office Care
4. Institutional Care
5. Home Care

E. Geriatric Care and Services

1. Home Care
2. Institutional Care
3. Health Clinic Services
4. Medical Office Care

III. Mental Health, Mental Illness and Retardation

A. Care of Mentally Retarded
1. Institutional Care and Services
2. Social Services
3. Training the Mentally Retarded
4. Home and Community Services

B. Mental Health Maintenance
1. Clinic Services
2. Diagnostic Processes and Referral
3. Home and Community Services
4. Social Services

C. Psychiatric Services
1. Institutional Care and Services
2. Home and Community Services
3. Diagnosis
4. Therapy
5. Social Services

IV. Accidents, Injuries, and Emergency Services

A. First Aid and Rescue Services
1. Ministering
2. Reporting

B. Medical Emergency Services
1. Transporting
2. Disaster Team Service
3. Institutional Emergency Service

C. Accidents and Poisoning, Control and Prevention
1. Information Preparation and Dissemination
2. Poison Control
3. Safety Education and Engineering
4. Records and Reporting

V. Dental Science and Services

A. Dental Health Maintenance
1. Examination and Assessment
2. Dental Prophlaxis
3. Preparing and Maintaining Records

B. Dental Care
   1. Diagnostic Procedures
   2. Treatment and Corrective Measures
   3. Maintaining Patient Records

C. Dental Restoration
   1. Making Impressions
   2. Preparing and Maintaining Prosthodontic Devices

VI. Pharmaceutical Science and Services

A. Regulation and Control of Pharmaceuticals
   1. Storage and Accounting
   2. Distribution Procedures
   3. Records on Reportable Items
   4. Information Dissemination

B. Production of Drugs, Biologicals, and Chemicals
   1. Manufacturing
   2. Packaging and Distribution
   3. Research

C. Retailing and Distribution
   1. Prescription Services
   2. Dispensing
   3. Delivering
   4. Records and Reporting

VII. Medical Science and Services

A. Sciences Basic to Medical Services
   1. Bacteriology
   2. Cytology
   3. Biology
   4. Physics
   5. Chemistry
   6. Mathematics
   7. Anatomy and Physiology
   8. Psychology
   9. Sociology

B. Surgical Care and Services
   1. Surgical Procedures
   2. Surgical Patient Care
   3. Patient Rehabilitation
   4. Records and Reporting

C. Medical Care and Services
   1. Medical Diagnostic Procedures
   2. Medical Patient Care
   3. Patient Rehabilitation
   4. Records and Reporting

VIII. Biologic Science and Technology

A. Bio-Medical Electronics Technology
   1. Monitoring
   2. Instrumentation
   3. Research

B. Biology
   1. Blood Banking
   2. Tissue Processing
   3. Micro-and Macro-Organism Identification
   4. Blood Analysis
   5. Radio-Isotope Processes

C. Bio-Chemistry
   1. Qualitative Analysis
   2. Quantitative Analysis

D. Bio-Physics
   1. Artificial Replacements (Body Fluids & Parts)
   2. Nuclear Monitoring
   3. Instrumentation

IX. Health Services Administration

A. Public Health Administration
   1. Enforcing Health Regulations
   2. Public Health Education
   3. Health Related Information
   4. Research

B. Institutional Administration
   1. Health-Testing and Referral
   2. Health-Care
   3. Sick-Care
   4. Preventive-Maintenance

C. Private Health Services
   1. Developing and Maintaining Facilities
   2. Medical and Health-Related Services

D. Health Maintenance Systems
   1. Health Insurance
   2. Cooperative Health and Medical Services
   3. Data Collection and Dissemination

Cluster for
Recreation and Hospitality (Tourism)

I. Environmental Management

A. Recreation and Planning
1. Research
2. Zoning
3. Design
4. Construction
5. Landscaping
6. Maintenance
7. Financing

B. Natural Resource Development
1. Oceans, Beaches, Estuaries, and Other Water Bodies
2. Ranges, Forests, Deserts, and Other Lands
3. Fish, Game, and Wildlife
4. Wilderness Areas
5. Scenic Points and Vistas
6. Natural Wonders
7. Parks
8. Picnic and Rest Areas
9. Camps and Camping Areas
10. Zoos and Aquariums
11. Trails and Waterways

C. Leisure-Related Property, Facility, and Commodity Entrepreneurship
1. Vacation Homes, Apartments, Condominium's
2. Resorts, Hotels, Motels, & Lodging
3. Facilities-Ski, Marina, etc.
4. Equipment Leasing and Sales
5. Concessions and Restaurants
6. Marketing, and Promotion
7. Product Manufacturing & Distribution

II. Community Services

A. Public Government
1. Local Parks and Recreation
2. Public Housing Recreation
3. Beautification
4. Armed Forces Recreation

B. Special Groups
1. Youth Agencies
2. Pre-School Play and Day Care
3. In-School Day Care and Recreation
4. Senior Citizen Centers/Programs
5. Church Recreation
6. Employee Recreation
7. Recreation for the Handicapped

C. Commercial Recreation
1. Personal Services
2. Discotheques
3. Theatres - Stage and Screen
4. Amusement Parks
5. Physical Culture Operations
6. Expositions

7. Legitimate Gambling Operations
8. Facilities - Bowling, Pool, Skating, etc.

D. Private
1. Service Groups
2. Golf and Tennis Clubs
3. Young Adult Groups - Ski, Social, etc.

III. Human Development

A. Education
1. Recreation Activities Instruction
2. Environmental Education
3. Community School Recreation
4. Museums and Libraries
5. Extension Recreation

B. Movement
1. Phusical Recreation Programs
2. Sports and Athletics
3. Coaching
4. Children's Game

C. Arts
1. Graphic - Printing, Silk Screen Layout
2. Performing - Acting, Instrumental Music, Singing, and Dancing
3. Fine - Painting, Sculpture, Music Composition
4. Social - Etiquette, Entertaining, Conversation
5. Photographic - Filming, Processing

D. Humanities
1. Celebrators, Festivals, Fairs
2. Special Cultural Programs - Indian, Black, Youth, etc.
3. Language Development
4. Historic Preservation/Interpretation
5. Creative Writing

IV. Mobility

A. Media Ulization
1. T. V. and Radio
2. Mass Media
3. Tourism and Recreation Promotion
4. Recreation Information Systems
5. Travel Aids

B. Accessibility
1. Tour Direction
2. Travel Agencies
3. Group Travel Services
4. Special Recreation/Tourism Vehicle Services

C. Space
1. Urban Open Space Design
2. Recreation Transportation Systems
3. Spatial Geography and Planning

V. Health Care

A. Preventive Health
   1. Recreation Sanitation
   2. Recreation Safety
   3. Leisure Consumerism
   4. Leisure Product Testing/Controls
   5. Physical Fitness Programs

B. Counseling
   1. Cut-rate Recreation Programs
   2. Avocational Counseling

C. Therapy
   1. Therapeutic Recreation
   2. Correctional Recreation
   3. Drug Therapy

Cluster for
Manufacturing

I. Design

A. Product
1. Model Development
2. Prototype Testing
3. Packaging

B. Process
1. Component/Material Flow Systems
2. Assembly Line Systems
3. Cybernetics

C. Equipment
1. Foundry Operations
2. Electromechanical Systems
3. Machine Operations

II. Materials

A. Natural
1. Animal Sources
2. Vegetable Sources
3. Mineral Sources

B. Synthetic
1. Mineral Derivatives
2. Vegetable Derivatives
3. Extractive Processes

C. Receiving
1. Materials Handling
2. Transportation and Storage

D. Waste Output
1. Disposal Operations
2. Recycling Operations

III. Production

A. Processing
1. Assembly Line Operations
2. Material Flow Operations
3. Automation

B. Quality Control
1. Component/Materials Inspection
2. Processing Inspection
3. Product Inspection

IV. Distribution

A. Packaging
1. Packaging Development
2. Packaging Manufacturing

B. Marketing
   1. Retailing
   2. Wholesaling
   3. Distribution

C. Advertising
   1. Product Promotion

D. Transportation
   1. Air
   2. Truck
   3. Rail
   4. Pipeline
   5. Vessel

E. Warehousing
   1. Packing
   2. Storing/Inventory

V. Research

A. Product
   1. Design
   2. Materials
   3. Utilization

B. Process
   1. Production Processes
   2. Quality Control

C. Marketing
   1. Consumer Research
   2. Product Promotion Research

Cluster for
Marine Science Occupations

I. Marine Biology

A. Marine Microbiological Research
1. Boat or Vessel Operation
2. Collection Gear, Operation and Repair
3. Water Sampling for Micro-organism Survey
4. Bacterial Culture, Identification and Isolation
5. Plankton Collection, Preservation and Storage
6. Planktor Sorting, Identification and Packaging
7. Micro-organism Life Cycle and Food Systems

B. Marine Animal (zoological) Research
1. Boat or Vessel Operation
2. Collecting Gear Operation and Repair
3. Navigation, Communication, Meterological Fish Finding Systems
4. Specimen Collection
5. Specimen Sorting, Counting and Storage
6. Live Specimen Laboratory Studies
7. Specimen Dissection, and Micro or Macro Examination
8. Survey of Life Cycle and Range of Species
9. Food Sources and Cycles for Species
10. Diseases, Parasites and Enemies of Species

II. Marine Biology

A. Marine Plant (Botanical) Research
1. Boat or Vessel Operation
2. Collecting Gear Operation and Repair
3. Navigation, Communication, Meterological, and Plant Finding Systems
4. Specimen Collection
5. Specimen Sorting, Counting and Storage
6. Live Specimen Laboratory Studies
7. Specimen Dissection, and Micro or Macro Examination
8. Survey of Life Cycle and Range of Species
9. Nutrient Sources and Cycles for Species
10. Diseases, Parasites and Enemies of Species
11. Sedimentation, Turbidity and Sunlight Effects on Marine Plant Life

B. Marine Biology Laboratory Management
1. Acquisition of Facilities, Vessels and Equipment
2. Operation and Maintenance of Equipment
3. Chemical Laboratory Services
4. Botanical and/or Zoological Laboratory Services
5. Specimen Storage and Shipping Services

C. Marine Ecology Research
1. Marine Plant and Animal Relationship Studies
2. Water Chemistry Effects on Marine Life
3. Temperature Effects on Marine Life
4. Affects of Light on Marine Life
5. Effects of Commercial Fishing on Marine Life Systems
6. Control of Marine Life Systems to Conserve Species

III. Commercial Fishing

A. Ocean Fishing
1. Offshore Fishing Vessel Operation
2. Trawler and Dragger Operation
3. Inshore Fishing Operations
4. Seine, Net, Trap and Gear Making and Repair
5. Meteorology, Navigation, Communication, and Fish Finding Systems
6. Shipboard Product Sorting, Stowing and Quality Control

B. Seafood Processing
1. Shipboard or On-shore Raw Fish Preparation
2. Product Cooking
3. Product Packaging
4. Product Preservation (Canning, Freezing, Salting, Drying, Pickling, etc.)
5. Product Marketing
6. Bi-Products Production (Oil, Meat, Animal Food, Fertilizer, or Shells)

C. Seafood Inspection
1. Checking for Legal Species and Size
2. Bacteriological Determination of Product Quality
3. Analysis for Adulterants or Substitution of Species
4. Determination of Toxic Chemical Content

C. Seaweed Harvesting and Processing
1. Seaweed Harvesting Vessel Operation
2. Collection Gear Making and Repair
3. Product Collecting, Sorting, and Cleaning
4. Packaging and Preservation and Delivery
5. Chemical or Pharmaccutical Compound Extraction

D. Sport Fishing Enterprises
1. Charter Party Boat Operation
2. Deepwater Party Boat Vessel Operation
3. Gear and Lure Preparation and Maintenance
4. Navigation, Meterological Communications and Fish Finding Systems
5. Sanitation and Fish Cooling Systems

IV. Aqua-Culture

A. Marine Fish or Shellfish Culture Research
1. Isolate Potentially Commercial Species
2. Develop Physical System for Its Culture
3. Develop Food Source and Its Production Sustem
4. Develop Hybreds or Superior Strains
5. Control Parasitic and Disease Agents
6. Develop Systems to Eliminate Competing Organisms
7. Develop Optimum Harvest Method
8. Develop Optimum System for Controlling Production Cycle

B. Marine Plant Grower
1. Isolate Commercially Useful Species
2. Develop Physical System for its Culture
3. Provide Optimum Water, Nutrient and Sunlight Conditions
4. Develop Superior Strain

5. Control Disease, Parasite, and Enemy Organisms
6. Develop System for Controlling Production Cycle
7. Harvest and Process for Market
8. Deliver to Market

C. Fish Hatching, Raising
1. Construct Hatching, Growing and Harvesting Facilities
2. Capture or Acquire Fertile Adults of Species
3. Collect, Fertilize and Hatch Eggs
4. Deliver Fry or Young to Growing Ponds
5. Provide Food, if in Artificial System
6. Harvest and Prepare for Market
7. Deliver (live or processed) to Market

V. Marine Transportation

A. Inland Water Transportation
1. Riverboats and Barge Operation
2. Deck Department
3. Engineer Department
4. Stewards Department
5. Merchant Marine Officers
6. Merchant Marine Seamen
7. Piloting

B. Ocean Water Transportation
1. Ocean and Intracoastal Vessel
2. Operations
3. Deck Department
4. Engineer Department
5. Stewards Department
6. Merchant Marine Officers
7. Merchant Marine Seamen
8. Piloting

VI. Marine (Oceanographic) Exploration

A. Oceanographic Mapping and Charting
1. Oceanographic Vessel Operation
2. Air-borne Photogrammetric and Instrumental Survey
3. Instrumentation Use and Repair
4. Depth Sounding and Charting
5. Bottom Sampling and Charting
6. Monitoring and Charting Dynamic Change
7. Oceanic Topographical Map and Chart Production

B. Ocean Mineral Exploration
1. Photogrammetic or Air-borne Instrument Surveys
2. Geological Interpretation of Undersea Topography
3. Chemical Analysis of Water and Bottom Samples
4. Underwater drillings, sampling and seismographic Surveying

C. Ocean Current and Water Research
1. Oceanographic Vessel Operation
2. Water Sampling, Temperature, and Chemical Analysis
3. Fixed or Free Floating Buoy Instrument Systems
4. Aerial Photographic Monitoring

5. Ocean Current Chart and Map Production
6. Meterological and Seasonal Effects of Ocean Currents

VI. Underwater Construction and Salvage

A. Offshore Mineral Production
1. Drilling Tender Vessel Operation
2. Offshore Drilling (Oil, Sulphur, Brine, Facility Construction)
3. Offshore Drilling Operations
4. Offshore Dredge Construction and Operation
5. Construction of Offshore Piping Systems
6. Offshore Pumping, Storage and Loading Systems

B. Underwater Engineering Research
1. Submarine Materials Testing and Development
2. Underwater Anchoring and Stabilizing Systems
3. Fixed Undersea Structures Design and Construction
4. Underwater Repair and Maintenance
5. Mobile Submersible Machine Design and Construction
6. Submersible Machine Operation

C. Deepwater Diving and Life Support
1. Diving Tender Boat Operation
2. Diving Gear Use and Maintenance
3. Gas and Air to Diver Delivery Systems
4. Hardhat and Scuba Diving
5. Submersibles, Bells, and Decompression Systems
6. Communication Systems
7. Physiological Monitoring, First Aid, and Lifesaving

V. Underwater Construction and Salvage

A. Underwater Construction
1. Construction Tender Vessel Operation
2. Underwater Rigging
3. Underwater Welding, Cutting, Fastening and Assembly
4. Underwater Anchoring, Stabilizing, Cabling, and Marking Systems
5. Underwater Repair and Maintenance

B. Underwater Salvage Demolition
1. Salvage Ship Operation
2. Salvage by Air Tank Floatation
3. Salvage by Diving and Recovering
4. Salvage Law and Regulation
5. Underwater Demolition Device Design,
6. Placement and Detoriation

Cluster for
Marketing and Distribution Occupations

I. Marketing System

A. Retail Trade
1. General Merchandise Group
2. Dealership and Franchises
3. Specialty Stores
4. Rental Operations

B. Wholesale Trade
1. Merchant Wholesaling
2. Manufacturing
3. Merchandise Brokerage
4. Farm Products Assembly
5. Petroleum Plants and Terminals

C. Service Trades
1. Lodging
2. Personal Services
3. Business Services
4. Auto and Miscellaneous Repair and Services
5. Travel, Recreation and Entertainment

D. Non-Store Retailing
1. Automatic Merchandising
2. Mail Order
3. Direct Selling

E. International Trade
1. Foreign Operations
2. Exporting

II. Sales and Services

A. Industrial Selling
1. Production and Engineering
2. Business Operations

B. Trade Selling
1. Retail Resale
2. Wholesale Resale
3. Home and Institutional Resale

C. Consumer Selling
1. Apparel, Accessories and Personal Care
2. Hardware, Materials Equipment
3. Housing, Property and Household Products
4. Food Products and Services
5. Automotive, Transportation and Petroleum Products
6. Intangibles

III. Buying

A. Industrial Purchasing
1. Purchasing Procedures
2. Vendor Relations

B. Buying for Resale
   1. Buying Offices
   2. Chain Operations
   3. Independent Operations

C. Procurement
   1. Bid Advertisement
   2. Direct Negotiation

IV. Sales Promotion

A. Advertising
   1. Media
   2. Organizations

B. Display
   1. Display Houses
   2. Windows and Interiors

C. Public Relations
   1. Customer and Community Services
   2. Trade Relations
   3. Publicity

V. Physical Distribution

A. Product Transport
   1. Carriers
   2. Traffic
   3. Shipping and Delivery

B. Storage
   1. Warehousing
   2. Inventory Control

C. Materials Handling
   1. Receiving and Marketing
   2. Assembling and Packing

VI. Marketing Services

A. Finance
   1. Banking Institutions
   2. Exchanges

B. Credit
   1. Consumer Credit
   2. Commercial Credit

C. Insurance
   1. Personal Insurance
   2. Business and Property Insurance

D. Research
   1. Marketing Information
   2. Product Analysis and Development

Cluster for
Personal Service Occupations

I. Physical Culture

A. Consultation and Services on Human Weight Control
1. Analyzing and Counseling on Weight Problems
2. Operating and Maintaining Reducing Studio Equipment
3. Directing and Guidance of Physical Exercise Activities

B. Massage and Related Services
1. Analyzing, Counseling, and Massaging
2. Programming of Individual Treatment
3. Operating and Maintaining Massaging Equipment

C. Entrepreneurship
1. Establishing and Equipping Studio
2. Owning and Operating Establishment
3. Analyzing and Managing of Finances and Records
4. Advertising and Sales
5. Custodial Operation and Maintenance of Studio

II. Barbering

A. Customer Care and Special Services
1. Shampooing
2. Hair Styling
3. Shaving and Facial Treatment
4. Scalp and Skin Treatment Operations
5. Styling and Restoration of Hairpieces

B. Entrepreneurship
1. Establishing and Equipping a Shop
2. Owning and Operating Establishment
3. Analyzing and Managing of Finances and Records
4. Advertising and Sales Custodial Operation and Maintenance of Shop

III. Mortuary Science

A. Mortuary Services and Personal Relations
1. Embalming or Cremating
2. Transporting
3. Restoration Art Processes
4. Pathological Examinations
5. Assisting and Counseling Family Members
6. Contractual Embalming and Restoration Art Treatment

B. Special Funeral Home Functions
1. Planning and Arranging for Special Funeral Functions
2. Transporting
3. Ushering and Services
4. Displays and Sales

C. Entrepreneurship
1. Establishing and Equipping Funeral Home
2. Owning and Operating Establishment
3. Analyzing and Managing of Finances and Records
4. Advertising and Sales
5. Custodial Operation and Maintenance

IV. Cosmetology

A. General Customer Care and Special Services
1. Shampooing
2. Hair Styling
3. Facial Treatment Operations
4. Manicuring
5. Scalp and Skin Treatment Operations
6. Styling and Restoration of Hairpieces
7. Maintenance of Tools, Equipment and Supplies

B. Theatrical and Television Make-up
1. Characterization Analysis
2. Selecting and Application Make-up for Specific Medium
3. Make-up Technology
4. Maintaining Products and Supplies

C. Product Testing and Selectivity
1. Color Testing of Products
2. Purchasing of Cosmetics and Hairpieces
3. Analyzing Products
4. Demonstrating of Products and Sales

E Entrepreneurship
1. Establishing and Equipping Shop
2. Owning and Operating Establishment
3. Analyzing and Managing of Finances and Records
4. Advertising and Sales
5. Custodial Operation and Maintenance of Shop

V. Household Pet Services

A. Grooming and Specialized Care
1. Shampooing Animals
2. Styling, Clipping, and Manicuring Services
3. Exercising
4. Counseling Services on Animals
5. Mortuary Care of Animals

B. Boarding and Hospital Services
1. Providing Physical Care of Animals
2. Nurturing
3. Exercising
4. Treating of Ill Animals

C. Obedience Training
1. Screening and Selecting of Animals
2. Programming and Training
3. Placing and Supervising
4. Evaluating Performance
5. Sales

VI. E. Entrepreneurship
1. Establishing and Operating Pet Shop
2. Establishing, Equipping, and Operating Grooming Center or Kennel
3. Advertising and Sales
4. Analyzing and Managing of Finance and Records
5. Custodial Operations and Maintenance of Shop or Center or Kennel

Cluster for
Public Service

I. Financial

A. Revenue
1. Taxation
2. Bonds
3. Fees

B. Disbursement
1. Salaries
2. Institutional Support

II. Urban Development

A. Planning and Engineering
1. Appraisal and Condemnation
2. Community Relations
3. Urban Renewal
4. Technical Assistance

B. Construction
1. Inspection
2. Labor Relations
3. Buildings
4. Roads

C. Public Housing
1. Coordination
2. Property Management
3. Recreation

D. Maintenance
1. Service
2. Supplies
3. Construction and Heavy Equipment

III. Regulatory Services

A. Financial
1. Credit Unions
2. Banks
3. Insurance
4. Savings and Loans
5. Stock Exchanges

B. Public Records
1. Birth
2. Marriage
3. Death
4. Titles and Deeds

C. Licensing
1. Occupational
2. Institutional
3. Vehicular

D. Customs and Immigration
   1. Customs Inspection
   2. Immigration Inspection
   3. Plant and Animal Inspection

E. Facilities
   1. Construction
   2. Purchasing
   3. Maintenance

IV. Education

A. Instruction
   1. Teaching
   2. Counseling
   3. Supervision
   4. Support Activities

B. Transportation
   1. Transport Service
   2. Maintenance

C. Extension Services
   1. Agricultural Services
   2. Consumer Services
   3. Homemaking Services

V. Police and Fire

A. Technical Support
   1. Inspection
   2. Accident Prevention
   3. Special Services

B. Law Enforcement
   1. Land, Air and Water Patrol
   2. Community Relations

C. Communications
   1. Transmitting and Receiving
   2. Fixed and Mobile Stations
   3. Maintenance
   4. Services

D. Maintenance
   1. Fire Equipment
   2. Police Equipment
   3. Electronic and Other Equipment

VI. Defense

A. Military
   1. Services
   2. Supply
   3. Research and Development

B. Civil Defense
   1. Disaster Planning
   2. Emergency Operations and Control
   3. Early Warning

VII. Post Office

A. Marketing
   1. Sales
   2. Special Services

B. Operations
   1. Processing
   2. Distribution

VIII. Public Utilities

A. Water Systems
   1. Water Supply
   2. Treatment and Distribution
   3. Installment and Maintenance

B. Sanitary Service
   1. Sewer Systems
   2. Refuse Systems
   3. Installation and Maintenance

C. Electric Service
   1. Generation
   2. Distribution
   3. Installation and Maintenance

D. Gas Service
   1. Manufacturing
   2. Transmission
   3. Service

E. Steam Supply
   1. Production
   2. Distribution
   3. Installation and Maintenance

IX. Public Health

A. Institutional Care
   1. Nursing Homes
   2. Mental Hospitals
   3. General Hospitals

B. Community Services
   1. Out Patient Clinics
   2. Emergency Services
   3. Community Health Centers
   4. Home Health Care

C. Food and Drug
   1. Sanitation
   2. Meat and Other Foods
   3. Drug Control

C. Research
   1. Pollution Control
   2. Communicable Disease Centers
   3. Mental Health

X. Labor Affairs

A. Employment Services
1. Labor Market Survey
2. Employer Relations
3. Counseling and Testing
4. Placement

B. Employee Compensation
1. Insurance
2. Worker Compensation

C. Labor Standards
1. Safety and Health
2. Minimum Wage
3. Safeguarding Special Groups

XI. Highways

A. Design and Construction
1. Planning
2. Land Acquisition
3. Bridges & Tunnels
4. Engineering & Inspection

B. Toll and Traffic Control
1. Toll Collection
2. Electronic and Electric Equipment
3. Installation
4. Maintenance

XII. Public Transportation

A. Land
1. Rapid Transit
2. Railroads
3. Buses and Trucks
4. Bridges & Tunnells

B. Air
1. Airports & Terminals
2. Traffic Control
3. Maintenance

C. Water
1. Inland Waterways Operation
2. Design and Construction
3. Maintenance

D. Control
1. Port Authorities
2. Turnpike & Tollbridges
3. Registration and Licensing
4. Inspection

XIII. Social and Rehabilitation

A. Children and Youth
1. Child Care Assistance
2. Foster Homes
3. Youth Corrections and Development

B. Adult
   1. Assistance and Support to the Aging
   2. Vocational Rehabilitation

C. Family
   1. Medical Social Assistance
   2. Family Support
   3. Community and Neighborhood Outreach
   4. Consumer Affairs

XIV. Courts and Corrections

A. Courts
   1. Judicial Services
   2. Legal Services
   3. Court Services
   4. Probationary Services

B. Penal Institutions
   1. Security
   2. Prison Industries
   3. Education and Related Activities

XV. Parks and Recreation

A. Development
   1. Planning
   2. Design and Construction
   3. Operation

B. Services
   1. Amusement
   2. Recreation
   3. Lodging

C. Maintenance
   1. Conservation
   2. Grounds and Camps
   3. Trails

Cluster for
Transportation

I. Land Transportation

A. Local and Suburban Transit
1. Vehicle Operation
2. Agents and Clerks
3. Security and Inspection
4. Signals Systems
5. Dispatching Systems
6. Equipment Maintenance and Repairs
7. Right-of-way Maintenance and Repairs
8. Structures Maintenance and Repairs

B. Highway Transportation
1. Vehicle Operation
2. Agents and Clerks
3. Security and Inspection
4. Freight Handlers
5. Estimating
6. Dispatching Systems
7. Equipment Maintenance and Repairs
8. Structures Maintenance and Repairs

C. Rail Transportation
1. Passenger Service
2. Freight Service
3. Operators
4. Agents and Clerks
5. Security and Inspection
6. Signals Systems
7. Rolling Stock Maintenance Repair
8. Way and Structures Maintenance and Repairs

II. Aerospace Transportation

A. Commercial Aviation
1. Commercial Aviation
2. Flight Crew
3. Ground Support Activities
4. Aircraft Maintenance
5. Passenger Services
6. Freight Services
7. Airport Facilities Operations

B. General Aviation
1. General Aviation
2. Flight Crew
3. Ground Support Activities
4. Aircraft Maintenance
5. Airport Facilities Operations

C. Spacecraft Transportation
1. Surface to Surface
2. Air to Surface
3. Air to Air (space station)
4. Surface to Air
5. Launch Operations
6. Landing Operations

III. Pipeline Transmission

A. Liquid and Gas Transmission
1. Petroleum and Natural Gas Transmission
2. Pipeline and Tank Farm Operation
3. Pipeline and Tank Farm Maintenance

B. Solids Transmission
1. Slurry and Coal Transmission
2. Pipeline and Tanking Operations
3. Pipeline and Tanking Maintenance

IV. Water Transportation

A. Inland Water Transportation
1. Riverboat and Barge Operation
2. Deck Department
3. Engineer Department
4. Stewards Department
5. Merchant Marine Officers
6. Merchant Marine Seamen
7. Piloting

B. Ocean Water Transportation
1. Ocean and Intracostal Vessel
2. Operations
3. Deck Department
4. Engineer Department
5. Stewards Department
6. Merchant Marine Officers
7. Merchant Marine Seamen
8. Piloting